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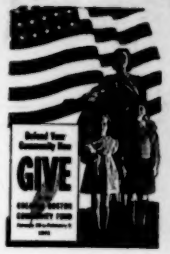

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VOLUME 224 JANUARY 16, 1941 NUMBER 3

WHITHER AMERICAN OBSTETRICS?*

NICHOLSON J. EASTMAN, M.D.†

BALTIMORE

I SHOULD be most remiss if I did not acknowledge at the outset my deep appreciation of the honor accorded me by your invitation to speak here on Walter Channing Day, at this Founders' Day meeting of the Boston Lying-in Hospital, an institution that has so long exemplified the finest traditions of American obstetrics, and the annals of which are so rich in contributions of the first order. But my gratification at being here is based not only on these circumstances, but is attributable in no small measure to another consideration. I refer to the close and pleasant relation that exists between the Boston Lying-in Hospital and our own department of obstetrics at Johns Hopkins. As many of you know, twice a year one of your assistant residents braves the uncertainty of Maryland weather and the vagaries of Johns Hopkins Hospital food, to spend six weeks with us in Baltimore. In exchange, your professor of obstetrics accepts one of our assistant residents for the same period. Save for a brief interval, this semiannual interchange has gone on since May, 1927, a period of almost fourteen years. Since these men visit the other clinic only after prolonged experience in their own institutions, they are in a position to evaluate the new methods seen and the new points of view encountered with a mature critique, and can take for their own what they like and leave what seems less desirable. It is thus a broadening experience in their postgraduate education; and I believe I voice the opinion of Dr. Irving as well as my own in saying that I hope the bond between the two institutions which this interchange has established may long continue.

In the course of any undertaking it becomes desirable from time to time to take stock of present achievements and ask, Whither are we going? The present moment would seem ripe for such an inquiry, since recent events in Europe leave no doubt that in obstetrics, as in other branches of knowledge, little can be expected from that source for many years, possibly for many decades. During the last three centuries the torch of leadership in obstetrics has been carried, in turn, by three countries: in the seventeenth century by France, where the labors of Paré, Mauriceau, de la Motte, Dionis and others first made it possible for men to gain access to the delivery chamber (without being burned at the stake); in the eighteenth century by England, where Smellie, William Hunter, Charles White, Denman and others succeeded in raising the status of obstetrics from the buffoonery of male midwifery to the dignity of a profession; and, finally, in the nineteenth century by Germany, where the studies of von Baer, Naegele, Semmelweiss, Michaelis, Credé and a host of others infused scholarship into obstetrics and made it one of the great branches of medical knowledge. During the first four decades of the present century, the contributions of American obstetricians have been such that even in the natural course of events, leadership would probably have fallen to us. But with the present chaos abroad, there can be no doubt where the onus lies. Yes, if advances are to be made in obstetrics during the twentieth century, it looks very much as if we must make them. This is a heavy responsibility. What are we to do about it?

By way of reassurance, let us recall that the record of American obstetrics is already one of which we may well be proud. Your own Autocrat of the Breakfast Table, almost a hundred years ago, was the first to demonstrate conclusively the contagiousness of puerperal fever, and shares with Semmelweiss the glory of discovering the cause of that great scourge. At about the same period, but far removed from the Boston of Holmes, a group of pioneers on the very outposts of American civilization were making another important contribution to obstetrics, but one that

*An address delivered at the Walter Channing Day dinner at the Boston Lying-in Hospital, October 24, 1940.

From the Department of Obstetrics, Johns Hopkins University and Hospital.

†Professor of obstetrics, Johns Hopkins University School of Medicine, and obstetrician-in-chief, Johns Hopkins Hospital.

is less well known. This almost forgotten contribution of frontier America to obstetrics would seem to merit a few minutes' consideration.

As you all realize, throughout the greater part of the nineteenth century cesarean section was the most fatal of surgical procedures, the mortality in Great Britain and France, for instance, approximating 85 per cent prior to 1865; in Paris, during the ninety years ending in 1876, not a single successful cesarean section had been performed. In the face of such results, it is not surprising that many obstetricians of the nineteenth century doubted the wisdom of ever resorting to this procedure, and predicted that the operation would shortly lapse into desuetude. The turning point in the evolution of cesarean section was the appearance in 1882 of a monograph by Max Sänger, then a twenty-eight-year-old assistant of Credé in the university clinic at Leipzig, in which he recommended the routine employment of carefully placed uterine sutures. Prior to this time, both in England and in Europe, uterine sutures were regarded not only as unnecessary but as actually harmful, since they seemed to predispose to suppuration. Sänger's recommendation, therefore, was completely at variance with the views then prevalent and, curiously enough, was based on his experience with but one case. Nevertheless, his contentions were supported by such carefully documented evidence, and his facts marshaled in such a logical and convincing manner, that the justice of his claim was apparent. Confirmation of his convictions followed quickly. Within a few years uterine suture was recognized as an indispensable part of cesarean section, and forthwith the modern operation came into being. Recalling, now, that Sänger's recommendation was founded on a single experience only, the question naturally arises, Whence came his idea? What were the sources of that carefully documented evidence in favor of the uterine suture? Who were his forerunners?

The answer to this question Sänger, himself, states frankly and without reserve. His predecessors were certainly not his colleagues in the sophisticated centers of Europe who, as we have said, opposed the suture, but were — oddly enough — certain pioneer surgeons working in the outposts of the American frontier. From Toledo to New Orleans these men had reported seventeen cases of cesarean section in which silver-wire sutures had been placed in the uterus, with the lowest mortality ever recorded. These cases are all carefully tabulated in Sänger's monograph, and full credit is given the Americans for having been the first to demonstrate the value of uterine suture in cesarean section. In all fairness to Sänger, it must be stated that it was his study that dealt the final blow to the old methods. He not only advocated the routine use of aseptic sutures, but showed in the minutest detail how to insert them; and by combining the scientific principles of wound coaptation with full Listerian technic, he created at one full stroke the modern operation. But to have furnished the supporting data for Sänger's hypothesis and to have devised and demonstrated the earliest successful type of uterine suture were certainly no mean achievements, and they may be recalled with pride as contributions of frontier America to cesarean section.

Some years ago, we had as a visitor to our clinic Dr. Ernst Philipp, now professor of obstetrics and gynecology at the University of Kiel. After he had spent a year in this country and had visited our leading clinics, I asked him how obstetrics here differed most markedly from obstetrics in Germany. His answer was immediate: obstetrics in the United States, he said, is far ahead of that in Germany in two respects: prenatal care, and anesthesia and analgesia. Myself a graduate of Yale and a member of the faculty of Johns Hopkins, I state with mixed feelings the fact that both these movements received their greatest impetus at Harvard. Since many of you are far better acquainted than I am with the early work in these two fields, I shall simply mention most briefly the fact that prenatal care, as we understand it, may be said to date from 1901, when the Instructive Nursing Association of this city began to pay prenatal visits to some of the women in the Outpatient Department of the Boston Lying-in Hospital. So far as anesthesia and analgesia are concerned, the very word "anesthesia," of course, was proposed by Holmes. Here in Boston, also, Dr. N. C. Keep on April 7, 1847, was the first American to administer ether to a patient in labor. A month later, Dr. Walter Channing, to whose memory we pay homage now, administered ether before applying forceps; his monograph on the subject, the first comprehensive survey of the relief of pain in labor, appeared the following year. Entitled *A Treatise upon Etherization in Childbirth,* it analyzes the results in five hundred and eighty-one cases, eighty-seven his own and the remainder derived from other sources in the country. And today, it is gratifying to know that this old tradition is being continued here and that, amid the huge modern literature on the subject, the one article that is a standard for all others comes from this clinic, under the authorship of Irving, Berman and Nelson.

But enough of the past. What of the present and future? One of the most conspicuous of re-

cent trends has been the tendency to combine obstetrics and gynecology as a unified specialty. A favorite topic for presidential addresses, — and indeed for occasions of just this kind, — numerous dissertations have been delivered on this subject; without exception, so far as I know, they all urge the combination with a fervor reminiscent of the Crusades. In Europe, as well as throughout the British Empire, obstetrics and gynecology have long been regarded as a single specialty, and there this union appears to function satisfactorily, both in practice and in university work. Obstetrics and gynecology are concerned with a single group of organs, the female reproductive tract. It is becoming increasingly evident, moreover, that many of the changes which the maternal organism undergoes in pregnancy are simply exaggerations of certain alterations that the nonpregnant woman exhibits every month; that the same hormones which control pregnancy and labor govern also many phenomena in the nonpregnant woman, including menstruation; and that abnormalities in the hormone balance are probably responsible for some of the major disturbances of pregnancy as well as for those of menstruation. Indeed, recent research in endocrinology has so welded obstetrics and gynecology that any basic study in either subject is becoming almost impossible without an intimate knowledge of the other. And so far as clinical work is concerned, it is widely recognized that no one can practice either specialty with full competence unless he has some knowledge of the other.

In consideration of all these valid reasons for a combined department, I venture to cite another point of view — my own point of view — with some diffidence. I can do so most succinctly, if it is not beneath the decorum of this occasion, by recalling the refrain of an old musical comedy song, which runs, "You Can't Play Every Instrument in the Band." During the six years I spent in a combined department, I remember going, on occasion, from the operating room, where prolapse of the uterus may have been the problem at hand, to the nursery for the newborn where perhaps a case of atelectasis was under survey; from there to the carcinoma clinic, where the cytologic structure of a cervical growth may have been under discussion, followed by an argument with the physicist as to the best type of roentgen-ray therapy for a pelvic carcinoma; from there to the prenatal clinic or ward, where possibly a case of preeclampsia or some medical complication of pregnancy was proving worrisome; and thence to the delivery room, where a woman with a borderline pelvis was being given a test of labor. Now, there may well be men who are capable of knowing intimately these several fields, who can keep up with the literature in each and whose clinical and operative skill in each is exemplary. There may be; but I myself cannot claim such versatility, and I am certain that the average man cannot attain excellence in so many disciplines; and, after all, we must tolerate no compromise with excellence. It seems to me beyond question that every man who proposes to engage in either obstetrics or gynecology must have sound fundamental training in the other field, including major operative work, but as he leaves his house-staff period, it is my belief that his interests and capabilities, as well as fortuitous circumstances, will naturally — and for the good of all concerned — narrow the major part of his work to one field or the other. Indeed, is not the basis of all modern specialization the fact that to attain excellence in a given field it is necessary to limit the scope of that field? Witness the fields of brain surgery, thoracic surgery and rectal surgery. If we are to attain excellence in obstetrics, if we are to make advances in it, it seems to me that we shall be most likely to do so if our efforts are concentrated on the problems of that specialty rather than disseminated over the manifold aspects of obstetrics and gynecology.

Students of jurisprudence claim that the best laws are those which repeal earlier laws — which correct previous errors of legislation. Obstetrics, too, has its laws, or at least traditions so old and deeply entrenched that they assume all the inviolable character of laws. Most of these are good and must be clung to. But our modern canon of obstetrics, let us recall, is built on foundations laid in times very different from ours — when the facilities of the modern hospital were undreamed of, when abdominal surgery was a desperate undertaking and when blood transfusion was unknown. Half a century ago, furthermore, the tools and methods of investigation were crude in contrast to ours, and some of the theories that had their genesis in that epoch are possibly open to question. For these and other reasons, certain of these old teachings have tended, I fear, to deter rather than promote obstetric progress. May I cite three examples of what I mean?

Until recent years, one of the most deep-rooted obstetric teachings had to do with the belief that the bag of waters played the principal role in cervical dilatation and was therefore indispensable to normal labor. It was for this reason that artificial puncture of the membranes, a favorite method of inducing labor in the eighteenth century, was abandoned early in the nineteenth century in favor of bags and bougies. Emphasized in

textbook after textbook, this conception that the hydrostatic action of the amniotic sac is essential for normal labor has long been regarded as an almost axiomatic truth. It has been part and parcel of all our obstetric teaching, and until very recently we have found it difficult, as did obstetricians a hundred years ago, to view without prejudice the deliberate puncture of the membranes for the induction of labor or any other purpose. It was not until some ten years ago that a group of American obstetricians had the openness of mind and the fortitude to challenge this old doctrine by rupturing the membranes to induce labor. We now know, on the basis of thousands of cases, that this is usually the best method of initiating labor and that the bag of waters has little or no function in cervical dilatation and effacement. In other words, this old and fallacious doctrine served, for a century and a quarter, to discredit and hold in desuetude one of the most valuable obstetric procedures.

My second example is of quite a different nature, and concerns itself with the age-old belief that interference with the childbearing career of a woman is at variance with the highest medical ethics — a blot on one's obstetric conscience. In an analysis of over forty-five thousand consecutive deliveries, we have found that women who have borne eight or more children experience three times the maternal mortality in subsequent pregnancies, and twice the stillbirth mortality met by women in the lower parity brackets. Study of the causes of death in these grand multiparas shows that they are usually a well-defined group of conditions, which, in turn, are basically brought about by reproductive senility. In view of the great hazards faced by these women in childbearing and the transcendent value they have to their large families, we are recommending sterilization in all women who have had eight or more children, solely on the grounds of great multiparity. This is usually done under local anesthesia, early in the puerperium. Although this practice may offend the sensibilities of some obstetricians, we regard it as a prophylactic step in reducing maternal mortality. Indeed, if every woman at the time of conception could be a healthy woman, our maternal mortality, I am certain, would be reduced forthwith by one quarter.

My third and last example has to do with the use of pituitary extract in labor. Because untrained or injudicious practitioners have used the drug in excessive doses, or in obstructed labors, many tragic accidents have resulted; and consequently it is widely held that this substance should never be used before the baby is born. Despite the fact that uterine inertia is the commonest cause of dystocia and not infrequently ends in intra-partum infection, Dührssen's incisions and difficult mid-forceps operations, I long held to the orthodox viewpoint, objecting to the employment of pituitary extract during the first and second stages, particularly by the intramuscular route. A few years ago, one of our assistant residents returned from his service at the Boston Lying-in Hospital very enthusiastic about the therapy used here in inertia, namely, minute doses of intramuscular pituitary extract in association with analgesia. I was frankly skeptical, but permitted a trial, with the reservations that the initial dose should never exceed 1 minim, that the maximal single dose should be 2 minims and that the utmost care should be used in avoiding its administration in obstructed labor. We have now employed this program in uterine inertia for two years and have reduced our incidence of difficult mid-forceps operations from ten or twelve a year to one or two; the need for Dührssen's incisions has diminished proportionately; and there have been no untoward results. Here, then, is another break with an old tenet, which, in cautious hands, seems advantageous.

In citing these three examples of outmoded theory and practice, I have no desire to discredit the great mass of obstetric knowledge handed down to us, but wish merely to recall that obstetrics is still trammeled by some ideas that are not valid, the legacy of a day long past. If obstetrics is to keep pace with modern knowledge, we must be constantly scrutinizing, with an open mind and wary alacrity, the old teachings as well as the new.

Having mentioned, in rapid succession, artificial rupture of the membranes, the sterilization of grand multiparas, the use of pituitary extract in labor, and analgesia, my conscience gives me pause, for I can see at once a host of obstetric worthies rising in opposition, with the accusation that a prophet of unbridled radicalism is before you. I can hear the old objection that labor is a normal process in which we should brook no interference, unless it is urgently needed. I can hear, in particular, the objection that such artificial procedures, if employed by practitioners of obstetrics throughout the country, are bound to result in countless disasters. In regard to the first objection, namely, that we should not interfere with such a natural process as labor, this accusation has been brought against almost every advance that has ever been made in obstetrics. I have no doubt that emphasis on this principle has done much good, for it has militated against injudicious interference, but if we are to answer truth-

fully the question, "Whither American obstetrics?" we can only acknowledge that obstetrics, in the hands of specialists at least, is veering in the direction of substituting, at various stages of labor, artifice for the oft-times slow, ineffectual and cruel vagaries of Nature. In the last quarter of a century the incidence of cesarean section in the lying-in hospitals of this country has increased fivefold, the frequency of elective low-forceps operations has shown an even steeper rise, whereas analgesia to the point of amnesia is almost routine in most large centers. It is true that some of these practices are at times used ill-advisedly, but if anyone's nostalgia for the "old days" persuades him that we shall ever go back to the "natural obstetrics" of a few decades ago, he is grievously in error. And he is in error because our obstetrics today is better obstetrics than that practiced by our fathers, as shown by the only valid criterion, namely, end results in thousands of cases. Fewer mothers die, fewer babies die and fewer women are left scarred, either physically or mentally, as the result of the process.

The type of obstetrics to which I refer, of course, is that practiced by the modern obstetric specialist — the man who has had long years of training in operative obstetrics and has an even keener eye for contraindications than for indications. He can almost sense when artificial rupture of the membranes would be hazardous or when elective forceps might lead to difficulty. What will be the outcome if the rank and file of general practitioners, who read about these procedures and observe them in clinics, attempt to practice them? I can give you some idea of what I think would happen by saying that among the cases referred to the Johns Hopkins Hospital after unsuccessful attempts with forceps by outside physicians, the majority show on admission a cervix that is less than eight centimeters dilated. Since the majority of babies in the United States are delivered by general practitioners, this problem is difficult to meet, but of one thing I am sure: our standards of obstetrics in maternity hospitals cannot be dictated by the capabilities of the general practitioners. I am equally certain that the average general practitioner, the man who is devoting but a fraction of his time to obstetrics, will do far more harm than good by indulging in the artifices which the specialist is using. Just because a man can do a spinal puncture is no indication that he can do a laminectomy; and the general practitioner must understand his limitations and the fact that only in expert hands and in a well-equipped maternity ward can Art improve upon Nature, and then only when seasoned judgment is used. I realize full well the implication of what I am saying, namely, that two types of obstetric practice are likely to be evolved, one followed by the specialist and the other by the general practitioner. Illogical as it may appear, I can see no other solution; and perhaps, in the long run, such an arrangement might prove advantageous. Under such circumstances, the general practitioner might regard obstetric surgery in the same light that he views other types of major surgery, and realize more fully than he does now the need for consultation in the major complications of pregnancy and labor.

Having stressed the fact that many of our obstetric teachings are derived from a time far removed from ours, I should like, in concluding, to point out that many of our ethical concepts originate from an even more distant period, when the social, economic and religious circumstances of life were altogether different from what they are today. It may well be that these old ethical teachings in regard to contraception, sterilization and abortion constitute our salvation, but in a changing social order it behooves us to examine each with unbiased perspective, to be sure that it makes for the greatest good of the greatest number. As an example of what I refer to, the psychiatrists are continually coming to us with their scourging genealogic histories, — their records of unfit giving birth to still more unfit, — and they beg for sterilization, even for abortion. I should not venture to answer this difficult and far-reaching question, but bespeak merely an attitude of mind unshackled by rules that were helpful a century ago.

There are other trends to which I might refer. But I have said enough, I believe, to make plain my viewpoint. Progress in obstetrics must depend on approaching its problems with an open mind, a mind willing to evaluate today's questions in terms of today's knowledge. If we do but this, I venture to hope that some future historian of obstetrics, as yet unborn, will write:

> In the twentieth century the torch of leadership in obstetrics was carried by the obstetricians of the United States of America; they found obstetrics still fettered by traditions that were as outworn medically as they were sociologically; they left it a liberal, progressive science, sensitive at once to the best interests of the patient and the needs of a changing civilization.

THE EDUCATION OF THE INTERN*

NATHAN SMITH, M.D.†

Introductory Remarks by
NATHAN B. VAN ETTEN, M.D.‡

NEW YORK CITY

I AM going to introduce briefly a gentleman who will tell you what we are doing at the Morrisania City Hospital for the training and education of interns. In presenting this study of intern education, we are making a record of obedience to the requirements of the Council on Medical Education and Hospitals and of the American College of Surgeons.

The Morrisania City Hospital is one of the twenty-six municipal hospitals in New York City. Its normal bed capacity of 539 is frequently exceeded, and with an average patient's stay of nine days, a large clinical procession is reviewed by the interns and residents. The student body is composed of fourteen residents and thirty-four interns, a ratio of intern to patient of 1:15.

To qualify for endorsement, an effort has been made to carry out in detail not only the letter but the spirit of the Council's requirements, and to go farther into the field of educating interns in the practicalities of medical care, to prepare them for similar problems that may later arise in their private work.

Medical education is far from a finished product, partly because it attempts to do too much through the long years devoted to it. In spite of the eight college years required for the degree of doctor of medicine, so much time that should be spent in teaching practical clinical treatment is devoted to smatterings of specialties that the students are in a confused state of mind when they receive their degrees. At the Morrisania City Hospital, we are impressed with the fact that the new interns have very little practical understanding of the meaning of a medical career. The Council undoubtedly desires to raise the quality of medical education. It will be making a real accomplishment if it can raise the level of the medical intelligence of the average doctor, so as to fit him for the better care of the average patient.

The general practitioner must not be frightened out of confidence in his ability to take care of the usual surgical, obstetric and medical problems. He is one of the most valuable citizens in this republic, and must be given the right kind of education. The force of opinion may demand a better practical education for the general practitioner, so that he may be able to render better medical service to people on low incomes.

The Council would probably do well to resurvey all medical schools to discover any failures to solve this problem. It has the equipment, the personnel and the funds to do this work, and I believe that it should be encouraged to undertake it.

Ten years ago, a young man, Dr. Nathan Smith, entered the administrative service of our hospital, and so quickly showed an unusual interest in intern training that the executive direction of it was assigned to him. Although every encouragement was given to inquiring minds, the greatest emphasis was placed on the practical application of medical knowledge. In 1936, Dr. Smith developed a scheme for intensive training in the Outpatient Department, where the interns could closely observe ambulatory patients such as they might meet in their own offices. This has proved to be a successful adventure into reality.

Dr. Smith also arranges for lectures on practical subjects on forty Wednesday afternoons during each year. The subjects are chosen by the interns, and the lectures are given by distinguished New York physicians.

He will now give a general outline of his plan for the education of interns.

* * *

Recent years have been marked by outstanding advances in the field of intern education. The comprehensive study of hospital internships initiated by the New York Committee on the Study of Hospital Internships and Residencies under the guidance of Dr. Jean Alonzo Curran, executive secretary of the committee and now dean of Long Island Medical College, has served as a stimulus to many hospitals for a better organization and conduct of intern education.

The internship has become a very essential part of the clinical preparation of the student in medicine. It is now widely realized that it provides a most desirable contact and experience with the problems and responsibilities of clinical work and helps to bridge, in a satisfactory manner, the transition from academic life to that of the practitioner.

*Presented at the annual meeting of the New Hampshire Medical Society, Manchester, May 15, 1940.

†Deputy medical superintendent, Morrisania City Hospital.

‡President, American Medical Association.

Because nearly all graduates in medicine are taking internships, and are often devoting not only one but several years of their lives to this form of practical training, it is most essential that the internship offered and accepted be properly organized to provide the incumbents with the type of training and experience that will best supplement their previous instruction.

The acceptance of interns implies a definite obligation on the part of both the intern and the hospital and its staff. The former is under definite obligation to give faithful, conscientious service, to fulfill scrupulously his contract and to follow the hospital rules and regulations.[1] The hospital that has interns must also accept the responsibility that this implies. The intern is there to complete with practical work and suggestions the largely theoretical part of his earlier education. His training should lie in the hands of the hospital, just as the training in the medical school is now carried on by the faculties of our medical colleges.

When it is considered how much the graduates of our medical schools still have to learn through practical experience, and how many of them go out from our internships to become the sole medical advisers of patients, the responsibility of the hospitals for their training is an important one.

The intern's schedule should be planned in such a manner that he will derive all the benefits of a varied and instructive program. Nothing should be taken for granted. Any hospital that has an adequate supply of clinical material may very readily adopt the suggestions and material used in this presentation.

Planning the Intern Schedule[2]

The student just out of medical school comes to a hospital for the chief purpose of acquiring knowledge. The establishment of a schedule before the intern group comes in and the carrying out of that schedule are dependent on careful planning in preparing for future work in general practice. These functions in some institutions are highly administrative procedures. However, the administrator should take into consideration the advice and counsel of his medical board.

The value of the internship necessarily varies with the quality of the hospital in which it is spent. Generally speaking, students with better training apply to and are absorbed by the better hospitals. Thus it happens that a poorly trained graduate may be further damaged by an internship served in a poorly organized and poorly conducted hospital.

The hospital that accepts interns should act as an educational department that undertakes to give them training calculated to meet the needs of their future potential patients, as well as for the immediate requirements of the patients in the hospital. The institution must realize that the medical school cannot be expected to produce fully trained doctors; it can at most hope to equip students with a limited amount of fundamental knowledge, to train them in the method and spirit of scientific medicine, and to launch them with a momentum that will make them active learners, observers, readers, thinkers and experimenters for years to come. In short, the hospital should be the finishing school of the young doctor who has just graduated from medical school.

It is obvious that for the study of disease and the training of interns there must be an adequate supply of clinical material. Diagnosis, treatment and teaching should be the function of an able staff. A systematized schedule containing medicine, surgery, pediatrics, obstetrics and related specialties is essential, and the schedule must guarantee the training of the practical doctor without gaps. A general hospital with all the branches of medicine and surgery should assure the intern of the opportunity to learn all types of disease.

Period and Type of Internship

Different opinions are held as to the length and type of training for an intern before commencing practice. An internship for the general practice of medicine should last for at least two years and the service should be a rotating-mixed one. Regardless of whether the young intern is aiming for general practice or a special residency, the general duties and training should be identical. In the rotating-mixed internship special arrangements should be made for the person who intends to specialize in surgery by having him devote more time to it, but at no time should he be deprived of the essentials in medicine.

Table 1 gives a schedule that is the result of a careful study and many revisions; it demonstrates the two year rotating-mixed internship very well. This may be of interest for the purpose of comparison with other schedules.

The total number of months spent on each service, on both the medical and surgical appointments, is as follows:

SURGICAL APPOINTMENT

Surgery, 10½ months.

Three months as "junior" on general surgery with pathology, covering his own clinical and surgical pathology and including instruction in anesthesia.

Three months as assistant senior on skeletal surgery, including traumatic and orthopedic surgery.

One and a half months as "senior" on general surgery, including gynecology.

Three months as "house" on general surgery.

Medicine, 4½ months.

Three months as "junior" with pathology, covering his own clinical pathology.

One and a half months as "senior."

Obstetrics, 6 weeks.

Pediatrics, 6 weeks (covering his own clinical pathology).

Eye, ear, nose and throat and Chest Service, 6 weeks.

Outpatient Department, 6 weeks (special clinic schedule).

Ambulance and emergency-room service, 3 months.

This, however, means only forty-five days of actual riding, since the interns work on alternate days only. It also includes active participation in the treatment of acute emergency patients who either walk in or are transported to the emergency room.

MEDICAL APPOINTMENT

Medicine, 7½ months.

Three months as "junior" with pathology, covering his own clinical pathology.

One and a half months as "senior."

Three months as house.

Surgery, 7½ months.

Three months as "junior" with pathology, covering his own clinical and surgical pathology.

Three months as "assistant senior" on skeletal surgery, including traumatic and orthopedic surgery.

One and a half months as "senior" on general surgery, including gynecology.

Obstetrics, 6 weeks.

Pediatrics, 6 weeks (covering his own pathology).

Eye, ear, nose and throat and Chest Service, 6 weeks.

Outpatient Department, 6 weeks (special clinic schedule).

Ambulance and emergency-room service, 3 months.

This, however, means only forty-five days of actual riding, since the interns work on alternate days only. It also includes active participation in the treatment of acute emergency patients who either walk in or are transported to the emergency room.

TABLE 1. *A Model Intern Schedule for a Two-Year Rotating-Mixed Service.**

PERIOD	ASSIGNMENT	INTERN A	INTERN B	INTERN C	INTERN D
First three months	Junior	Surg. I and path. intern	Surg. II and path. intern	Med. I and path. intern	Med. II and path. intern
Second three months	Junior	Med. I and path. intern	Med. II and path. intern	Surg. I and path. intern	Surg. II and path. intern
Third three months	Pediatrics and Obstetrics	Ped., 6 wk. Obs., 6 wk.	Ped., 6 wk. Obs., 6 wk.	Obs., 6 wk. Ped., 6 wk.	Obs., 6 wk. Ped., 6 wk.
Fourth three months	Ambulance	Amb.	Amb.	Amb.	Amb.
Fifth three months	E. E. N. T. and Chest Service, and Specialty Clinic	Spec. Cl., 6 wk. E. E. N. T. and C. S., 6 wk.	Spec. Cl., 6 wk. E. E. N. T. and C. S., 6 wk.	E. E. N. T. and C. S., 6 wk. Spec. Cl., 6 wk.	E. E. N. T. and C. S., 6 wk. Spec. Cl., 6 wk.
Sixth three months	Assistant senior	Skeletal surgery	Skeletal surgery	Skeletal surgery	Skeletal surgery
Seventh three months	Senior	Surg. I and Gynecol., 6 wk. Med. I, 6 wk.	Surg. II and Gynecol., 6 wk. Med. II., 6 wk.	Med. I, 6 wk. Surg. I and Gynecol., 6 wk.	Med. II., 6 wk. Surg. II and Gynecol., 6 wk.
Eighth three months	House	Surg. I	Surg. II	Med. I	Med. II
		INTERN E	INTERN F	INTERN G	INTERN H
First three months	Junior	Med. I and path. intern	Med. II and path. intern	Surg. I and path. intern	Surg. II and path. intern
Second three months	Junior	Surg. I and path. intern	Surg. II and path. intern	Med. I and path. intern	Med. II and path. intern
Third three months	Ambulance	Amb.	Amb.	Amb.	Amb.
Fourth three months	Pediatrics and Specialty Clinic	Spec. Cl., 6 wk. Ped., 6 wk.	Spec. Cl., 6 wk. Ped., 6 wk.	Ped., 6 wk. Spec. Cl., 6 wk.	Ped., 6 wk. Spec. Cl., 6 wk.
Fifth three months	Assistant senior	Skeletal surgery	Skeletal surgery	Skeletal surgery	Skeletal surgery
Sixth three months	Senior	Surg. I and Gynecol., 6 wk. Med. I, 6 wk.	Surg. II and Gynecol., 6 wk. Med. II., 6 wk.	Med. I, 6 wk. Surg. I and Gynecol., 6 wk.	Med. II., 6 wk. Surg. II and Gynecol., 6 wk.
Seventh three months	House	Surg. I	Surg. II	Med. I	Med. II
Eighth three months	Obstetrics, and E. E. N. T. and Chest Service	E. E. N. T. and C. S., 6 wk. Obs., 6 wk.	E. E. N. T. and C. S., 6 wk. Obs., 6 wk.	Obs., 6 wk. E. E. N. T. and C. S., 6 wk.	Obs., 6 wk. E. E. N. T. and C. S., 6 wk.

*This schedule has been in operation in a hospital of approximately 540 beds but lends itself very readily to a smaller hospital. By dividing the schedule in half it may be used for a hospital of 250 or 300 beds.

As will be seen in the above schedule, the only differences are that the surgical intern receives three more months of surgery than the medical, and the medical intern three more months of medicine than the surgical. Although this program has been devised for and has been in operation in a public hospital, it is sufficiently flexible to be used in any general hospital.[2]

It has always seemed to me that the training in the office specialties has been grossly neglected. Very few interns have any experience in the practical problems of home and office practice. It is a foregone conclusion that a small number are likely to become specialists, but all are confronted at first with general office practice. Therefore, the six-weeks outpatient specialty service is included at

the beginning of the second year of the internship.

The intern is assigned to these clinics as part of his regular rotating service. A systematic program of instruction in the form of postgraduate training is conducted by the senior members of the visiting staff, and includes the following specialties: venereal disease, office gynecology, urologic diagnosis, dermatology, allergy, proctology, physiotherapy, electrocardiography and injection of varicose veins, the greater number of which he will encounter in his office practice.[3]

It is not unusual to find that an intern, after completing his two-year internship, is not able to perform a diathermy treatment, treat a case of hay fever, treat an uncomplicated case of gonorrhea or read an electrocardiographic tracing. The average intern may attempt these without realizing their limitations; others have to resort to the various circulars issued by drug houses relating to treatment of these specialties, and still others obtain information from the salesmen who sell the various types of apparatus.

Table 2 gives the schedule of specialty clinics used in the Morrisania City Hospital.

TABLE 2. *Schedule of Specialty Clinics and Periods of Instruction.*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9:00–10:00 X-Ray	9:00– 9:45 X-Ray and Fluoroscopy	9:00– 9:45 X-Ray	9:00–10:30 Physical therapy	9:00–11:00 Luetic	9:00–10:30 X-Ray and Fluoroscopy
10:00–11:00 Baby Health	9:45–10:30 Genito-urinary	9:45–10:15 Basal metabolism	10:30–12:00 Gonorrhea	11:00–12:00 Tumor	10:30–12:00 Endocrine
11:00–12:00 Tumor	10:30–12:00 Tuberculosis rounds	10:15–11:15 Prenatal and Postnatal			
		11:15–12:00 Dental			
1:00– 1:30 Electrocardiography	1:15– 2:30 Skin	1:00– 2:00 Pharmaceutical conference	1:00– 2:00 Electrocardiography	1:00– 2:00 Electrocardiography	
1:30– 2:30 Gynecology	2:30– 5:00 Rectal	2:00– 3:00 General conference	2:00– 3:00 Peripheral Vascular	2:00– 5:00 Allergy	
2:30– 5:00 Peripheral Vascular		3:00– 4:00 Skin	3:00– 5:00 Diabetic		
		4:00– 5:00 Instruction in x-ray technic			

Introductory Program for the New Interns

In dealing with problems of hospital administration the administrator sometimes overlooks the problems of the "new intern," who has difficulty adjusting himself to a new environment, a new hospital and a new routine.

It is therefore important that the intern, before commencing his internship, be given a personal interview by the superintendent and his assistants, at which time credentials are examined and the hospital executives discuss, emphasize and clarify the following points: the rules and regulations of the hospital, an outline of routine duties, the care of the patient, the treatment of the patient's family, and the proper attitude toward the nursing staff, the attending staff and other members of the hospital organization.

After the preliminary personal interview the interns are introduced to the members of the medical board, the members of their medical staffs and the heads of divisions of the hospital, and are taken on a tour of inspection through the institution.

Two days previous to commencement of their internship the new members of the house staff are given a complete physical examination, including x-ray examination of the chest, a complete blood count, urinalysis and other laboratory data that may be indicated. These examinations are repeated annually, and an effort is made to correct any abnormalities.

In the Morrisania City Hospital, through the co-operation of the administrative, attending, resident, nursing, social-service and dietary divisions, it has been possible to formulate a program that is applied to the members of the intern group on five consecutive days prior to commencement of their duties. The program consists of seven lectures and demonstrations at which time the intern is carefully instructed in the meaning and work of these various divisions, as outlined below:

Intern Program

Lecture 1.

Discussion of rules and regulations of Morrisania City Hospital: medical superintendent.

Discussion of intern schedule and hospital forms: deputy medical superintendent.

Discussion of social-service problems and activities: directress of social service.

Discussion of dietetics in health and disease: chief dietitian.

Orientation tour of hospital and short discussion on nursing problems: superintendent of nurses.

Lecture 2. Practical demonstrations*
- Infusion and phlebotomy
- Hyperdermoclysis
- Thoracentesis
- Paracentesis
- Pneumothorax
- Lumbar puncture
- Surgical dressings

Lecture 3. Practical demonstrations
- Operating room technic
  - Preparation
    - Change of uniform
    - Cleansing hands
    - Sterile gown and gloves
    - Approach to operating field
    - Changing gloves during operation
    - Changing position during operation
  - Care of patient after operation
    - Examination for iodine
    - Dressings
  - Rules of operating room for spectators
    - Caps, gowns and masks
    - Amphitheater
  - Set-up of instruments and their care
    - Needles
    - Syringes
    - Scissors and so forth
  - Demonstration of surgical hemostasis and closure (surgical knots)
- Restraints
  - Adults
    - Ankle and wrist
    - Shoulder
    - Body
      - Bed sheet
      - Canvas with straps
      - Sideboards
  - Children
    - For examination
    - Jacket for active child
- Lifting and turning of patients in bed
- Daily care
  - Hair
  - Nose
  - Mouth
  - Ears
  - Back

Lecture 4. Practical demonstrations
- Counterirritants
  - Flaxseed poultice
  - Mustard paste
  - Turpentine stupe
  - Mustard bath for children
  - Croup tent
- Enemas†
  - Purpose
  - Types (cleaning, oil, carminative, stimulative and so forth)
  - Medications and materials
- Irrigations
  - Purpose
  - Types (ear, nose, throat, eye)
  - Supplies used

Lecture 5. Practical demonstrations
- Cold sponge bath
- Cold pack
- Prevention and care of bed sores

Lecture 6. Practical demonstrations
- Tracheotomy (done in the morgue)
- Insertion of tracheotomy tube
- Nasal pack

Lecture 7. Practical demonstrations
- Drinker respirator and inhalator
- Resuscitation apparatus
- Oxygen tent
- Incubator
- Operation of blood bank and blood transfusion
- Instructions in standard nomenclature of disease and hospital records
- Ambulance requirements and management of emergencies
- First-aid treatment of fractures and dislocations
- Instructions in laboratory procedures
- Instruction in procedure for obtaining consent for postmortem examination and the performance of autopsies

*The above procedures are done by senior interns, assisted by a nurse, on actual ward work.

†X-ray films are employed to demonstrate proper and improper technics.

The demonstration of a mustard paste or an ear irrigation may appear to be beneath the dignity of an intern, but as a matter of fact when these demonstrations were given the interest of the interns was manifested and led to many constructive inquiries. Although this may appear to be and is fundamental, its purpose is to familiarize the new intern with the essentials of common procedures too frequently either overlooked or entirely forgotten. They are procedures a doctor in practice may be called upon to perform or direct.[4]

The five days in the hospital prior to the commencement of internship may be called the "critical period," because it is during this time that the intern is familiarized with the established standards of the hospital. This period of introduction to the hospital has created a unity of spirit and a better co-operation between the attending staff, interns, nurses, employees and administrators, and this has provided better care for the patient.

It has been my experience from careful observation that once an intern has been started properly in his work, he will continue to give universally acceptable service; on the other hand, should he get into bad habits during his first week he will probably retain them during his entire internship.

The details of each of the above-mentioned lectures and demonstrations, as well as an outline of duties, responsibilities, rules, regulations and other miscellaneous details relating to the hospital and medical practice, have been compiled in book

form. This manual is a compilation of about one hundred and forty mimeographed pages and may be referred to as the "Hospital Bible," since it covers everything. A copy of this book is given to each of the new interns for future reference.

Program of Instruction and Education

Wards

On the wards the intern service should be a rotating one, and no attempt should be made to turn the intern out qualified either as an internist or surgeon, although he may assist at operations and do an ordinary uncomplicated surgical case.

Ward Rounds and Bedside Teaching

Bedside work and routine ward rounds with his chief and associates should be the highlights in the day's work. Here the main concern should be differential diagnosis and treatment and the intern should be made to familiarize himself with the ophthalmoscope, auroscope and such other diagnostic apparatus and measures as are ordinarily used by the general practitioner. At this time the chief of service should review the record and make such comments and corrections on the charts as are necessary.

Laboratory Work

In the laboratories the intern should not be regarded as an employee and burdened with the time-consuming repetitious work better done by paid technicians; rather he should be expected to follow up the blood, urines and pathologic specimens of the cases to which he is assigned.

Lectures

A definite course of lectures on various subjects is highly important and definitely welcomed by the intern group. Practical lectures are given on forty Wednesday afternoons during the year on the common necessary things a doctor should know. These are given by members of the attending staff and prominent men in medicine in New York and other cities. The topics are chosen by the interns, and a partial list follows:

Interpretation of the fundus of the eye in relation to general medicine
Present status in the treatment of cancer
The relation of neurology to medicine
Treatment of common diseases of the biliary tract
Treatment of common ear, nose and throat conditions
The relation of public health to the practice of medicine
Office treatment of urologic conditions
Medical ethics
The relation of psychiatry to medicine
Some practical aspects of allergy
Discussion of fundamental principles in the treatment of fractures
Chronic arthritis
Prenatal and postnatal care: home deliveries
Cultural aspects of medicine
Medical jurisprudence
Early diagnosis of brain tumor
Physical agents in the treatment of disease
Low-back pain
Treatment of heart failure
The roentgen appearance of the normal lung and its variations
Treatment of hand infections
Practical prescription writing
Therapeutics and menstrual dysfunctions
Diagnosis and treatment of commonest skin conditions
Practical points in pediatric practice
Infant feeding
Communicable diseases of the central nervous system and their public-health aspects
Orthopedic appliances: indications and use
Surgical emergencies
Diseases of the oral cavity of interest to the physician
Medical emergencies
Modern methods of diagnosis and treatment of the common arterial diseases
Anesthesia (surgical, obstetric and office)
Blood diseases
Allergic dermatoses
Acute infections of the urinary tract
Head injuries
Facilities the board of health offers to the practicing physician and his obligations to the board of health
Treatment and management of rheumatic heart disease in children
Complications of diabetes: treatment

Departmental Conferences

The departments of pediatrics, obstetrics and gynecology, medicine, surgery, pathology and x-ray have their weekly and monthly conferences and regular rounds, at which the intern receives instruction. Interns and residents present reviews of histories, diagnosis and treatment, and these are further discussed by the attending staff.

Every casualty is minutely studied to detect an error in either judgment or procedure.

Weekly Clinical Conferences for Interns

The Educational Committee of the House Staff arranges weekly conferences for interns, consisting in the presentation of interesting cases throughout the institution. An attempt is made to correlate the clinical, roentgenologic and pathologic findings. The presentations afford a kind of forum for our young and ambitious interns in preparation for future academic endeavor and expression.

Current Literature

Interns and residents meet once a week in the hospital library and review the current medical literature. In this way the intern is given an opportunity to speak before his colleagues, to think quickly while on his feet and to address groups

of people. Therefore, he not only acts in the capacity of pupil all the time but as teacher on occasions.

The library has a full-time librarian and contains the most recent books as well as outstanding foreign and domestic journals. No hospital should be without a workable medical reference library.

Responsibilities of the Attending Staff

The intern should be given an opportunity to attend lectures, conferences and follow-up clinics, which are held in the various divisions of the hospital. During these activities the members of the attending staff should function as members of a teaching staff and should be charged with the responsibility of developing and continuing the training of the interns.

Medical Ethics, Local Laws and General Behavior

Another essential of the intern's training is to impress on him those intangible qualities that, although not often spoken of, are nevertheless of great importance. To teach him the relation between himself and the other employees, no matter how humble their station, the confidential nature of all the information he gains about a patient's condition, his proper status with relation to physicians in private practice, local laws pertaining to contagious diseases and medical examiners' cases, the question of gratuities and other ethical problems, are all matters of great importance.

Recreation

The recreational side of the intern's life is frequently overlooked, yet in view of the exacting demands made on him this should be considered an essential provision. The intern's quarters should be sufficiently isolated so that he may feel free to relax. A radio, card table, piano and, if space permits, a billiard table should be provided. For outdoor recreation a tennis or handball court — or both — is beneficial. A quiet corridor and an individual room, affording privacy, are factors for consideration.[5]

Summary

Under the plan that I have outlined the intern has been trained in taking good histories and making thorough physical examinations, and has developed the art of medical logic in drawing conclusions. He has had basic training in the use of the fluoroscope, diathermy, basal metabolism and electrocardiographic equipment, and has been instructed in the interpretation of x-ray films, fluoroscopic examination and electrocardiographic readings. He has received instruction in the treatment of hay fever, injection of varicose veins, treatment of common skin conditions, office gynecology, proctology and the care of the diabetic patient. He has also been instructed in medicine, surgery, obstetrics, pediatrics and related specialties.

It may be said that the form of internship recommended is a well-rounded and practical one, fostering confidence, reliability and self-assurance to assume the responsibilities of general practice. It is a source of gratification for a hospital to know that it has trained the intern adequately, and this can be done by proper study and development of a schedule similar to the one recommended.

In summary, it may be said:

There should be careful and intelligent supervision of the intern staff by the superintendent, his assistant or another executive officer, who by experience is fitted to handle the training of the intern and who is clothed with sufficient authority to effect it.

The hospital must develop practical doctors who will know what to do with the type of case they are most likely to meet.

The attending members of the staff of a hospital—although they may not be connected with an outside teaching institution — should function as teachers and should be charged with the responsibility of developing and continuing the education of interns.

All appointments to the medical and surgical staffs of a hospital should be based on merit.

The intern must be trained in doing things; if he is merely told or if he only reads, his training is inactive and hence remains on the informational basis. He will be apt to fail to acquire the practical skill or the impulse to try things needed by the general practitioner.

The Outpatient Department should play a clinical role in the education of interns. Its importance is surely sufficiently obvious; to a considerable extent the ambulant patient manifests the process of disease closer to its onset than the patient in the wards does. No small proportion of the young physician's patients will be persons who complain of aches and pains before they are forced to take to their beds.

The quality of medical service and intern teaching entails dual responsibility. It depends on interest shown both by the administration and by the medical staff.

The organization and proper utilization of the intern's time is essential in order that he may derive the necessary benefits and opportunities the hospital has to offer.

The hospital should prepare a well-organized intern program in the form of lectures and dem-

onstrations to be given to the interns at the commencement of their internship, and to cover such subjects as rules and regulations of the hospital, social service, diets and practical demonstrations of medical procedures, nursing procedures and surgical technics.

Systematic practical lectures, didactic and expository in character should present to the intern comprehensive surveys of medicine, surgery and other clinical branches.

The various medical, surgical and specialty divisions in the hospitals should make regular rounds and should hold weekly and monthly conferences, in which the interns should be encouraged to participate.

168th Street at Gerard Avenue

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THE USE OF SILK IN INFECTED WOUNDS*

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WE PRESENT this paper on the use of silk in infected wounds as a contribution to surgical technic. The title may well provoke immediate criticism, since even the ardent advocates of "silk" surgery have condemned its use under these conditions. But as the years have passed, one of us (E. C. C.) has given up entirely the use of catgut, because even under the condition of infection, healing has been better with silk, and hernia and evisceration have been lessened.

The advantages of using fine silk instead of catgut for sutures and ligatures in clean wounds have been demonstrated conclusively by many investigators.[1-6] Fine silk is cheaper. It is more easily and reliably sterilized. It produces less reaction in the tissues, and it results in a stronger wound. Its use imposes on the operator a more exacting technic, which is invariably followed by fewer wound complications. When silk sutures are used, wounds are less painful, and the period of hospitalization is often shortened. Investigations from this clinic in the fields of hernia[5] and thyroid[1] surgery have clearly supported this point of view. Infection, wound reaction and recurrence of the hernia have been lessened in our clinic by its use. The sole disadvantage of silk is that it is nonabsorbable and hence may act as a foreign body. For this reason its use in infected wounds is not generally advocated, and many surgeons hesitate to use it in clean wounds because occasionally slight long-continued suppuration and a draining sinus may develop.

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Although it is true that silk is nonabsorbable in the sense that catgut is absorbed, under certain circumstances it may be completely removed from the tissues without being extruded from the wound. This is accomplished by fragmentation of the silk fibers and by inclusion of the fragments within mononuclear phagocytes. That silk may be absorbed in this fashion was shown years ago by Foot.[7] The process by which this is achieved is shown in Figures 1 and 2. To promote absorption the silk should be composed of small fibers, twisted rather than braided, and either unwaxed or waxed very lightly. So-called "serum-proof" silk is not so easily fragmented and hence is more likely to act as a persistent foreign body and to be extruded from the wound in the presence of infection.

In sharp contrast to the common belief that silk should not be used in infected wounds, an opinion shared by some surgeons[8] educated to the use of silk, is the curious acceptance by a large number of capable surgeons of the fact that in the field of alimentary-tract surgery, both gastric and intestinal, silk is the preferable suture material. Obviously all such cases are potentially, if not actually, the seat of infection. Halsted's[9] clear demonstration of the superiority of silk in large-bowel surgery lent a major impetus to this point of view. In a later paper[10] in commenting on the use of silk in infected wounds, Halsted wrote: "If fine silk were used and the infection slight, probably none of the buried threads would be extruded, nor would healing be delayed demonstrably on account of their presence." And very recently, following the publication of a book by one of us (E. C. C.[11]), a letter came from a gynecologic colleague, who

surprised us by saying that the book was satisfactory except for the section on gynecology. Here, he said, we made the mistake of changing from silk to catgut, for in a long career he had proved to himself the great superiority of silk in all types of gynecologic procedures.[12]

an animal's abdomen. These were then contaminated with equal amounts of a well-shaken bacterial culture, and closure was performed using silk in one wound and catgut in the other. It was found that only 50 per cent of the silk wounds suppurated, whereas 100 per cent of the catgut

FIGURE 1.

This photograph shows a silk suture buried four months previously in a highly infected wound in the abdominal wall of a dog. Note the perfect healing, without extrusion of the silk.

The knowledge that under certain circumstances silk may be absorbed from the tissues, and the experience of one of us (E. C. C.) who has used silk for years in the presence of infection, led to a comparative study of the healing under controlled conditions in the laboratory of infected wounds sutured with silk and with catgut.[13] Under sterile conditions parallel wounds were made in

wounds opened and discharged a purulent exudate. Moreover, the infection in the catgut wounds always appeared earlier and was severer. Healing occurred at about the same time in silk wounds that opened as in the corresponding catgut wounds. No persistent sinuses developed. Although some of the silk sutures were extruded from the wounds, healing occurred without delay

and without the removal or discharge of all the sutures. This was not true if heavy silk or continuous sutures were employed. Under these circumstances, all the silk often had to be removed from the wound before healing was complete.

Fortified by these laboratory investigations, but with no expectation of bringing adherents to this point of view, we present certain observations on

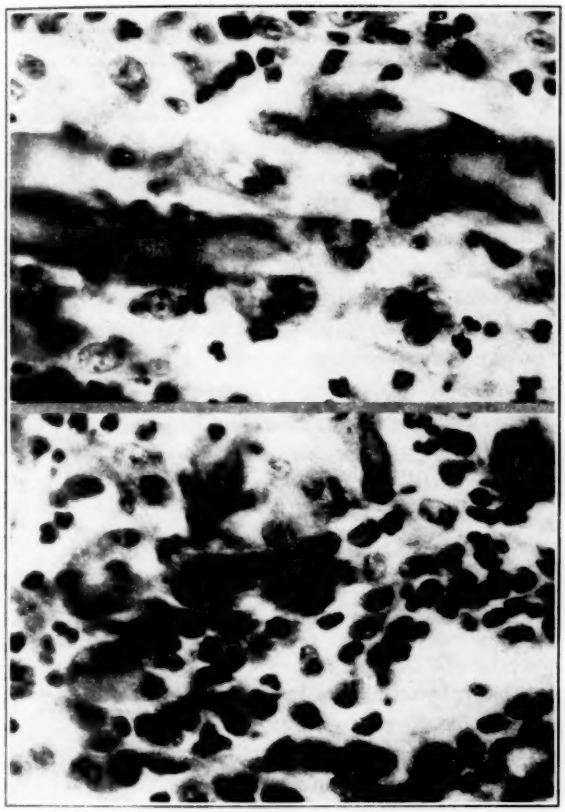

FIGURE 2.

This photograph shows several strands of a twisted silk suture buried six months previously in a highly infected wound in the abdominal wall of a dog. Note the fragmentation of the silk fibers and the continued presence of some phagocytes which are persisting in their attempts to break up further the foreign body. This wound, though grossly infected, discharged no sutures.

the use of silk in potentially infected and grossly infected surgical conditions. In our opinion, the results with this material are superior to those previously obtained with catgut. However, before presenting the material let us state clearly that the silk used is fine black silk (No. 4 Gudebrod, which breaks at 4 pounds' tension) and that the greater the infection, the less numerous the sutures used.

The technic generally followed in our clinic is to close the peritoneum by a continuous silk suture, single strand, which accurately approximates peritoneum to peritoneum. In placing this suture, meticulous care is taken to incorporate the transversalis fascia with the peritoneum. When a wound must be drained, an interrupted suture is always placed at each side of the drain so that this foreign body does not rest against the continuous suture. When the wound is grossly infected, once the peritoneum is closed, the layers are closed by interrupted Lembert sutures of fine silk. These are placed in long abdominal wounds in the fascia, not more than 6 mm. apart, and in the fatty layers in sufficient number to approximate the tissue and build up the wound by obliterating any dead space. If the wound is grossly contaminated, skin sutures are not placed, for if there is a small amount of infection and the skin is not closed over it, the wound will heal well without breaking down.

The realization that silk may be superior to catgut, even in infected wounds, has come slowly. Recognizing its advantage in alimentary-tract surgery, we were led naturally to its use in both chronic and acute cholecystitis. Next came its employment in pelvic surgery, both in potentially infected cases and in gross infection with tuboovarian abscess. Once the success of repair was demonstrated in such cases we accepted silk as the superior suture material in all wounds, and have recently utilized it in all forms of surgery involving infection, including infected pilonidal sinus, infected hands and acute suppurative appendicitis.

The material that we are presenting includes studies in biliary-tract and alimentary-tract surgery, surgery of the large bowel, gynecology and suppurative appendicitis. The results obtained in these fields by the use of fine silk-suture material are better than we have been able to obtain with the use of catgut. As others have repeatedly emphasized,—notably Whipple,[6] who has been won over to the use of silk by clinical trial, although for years he had been opposed to it,—the type of surgical technic demanded by those who use fine silk may contribute to these results quite as much as the material employed. It is our hope, as Allen,[14] of Australia, puts it, that the "fetish" of catgut may be somewhat dispelled by these observations.

Table 1 summarizes the material presented. It by no means covers all types of surgery in which we use silk, but demonstrates the common fields for surgical endeavor. Many surgeons use silk for biliary, gastric and large-bowel surgery, and yet are appalled by the suggestion that it can be utilized in more serious infectious conditions. This is a peculiar paradox, for there is no more seri-

ous danger to a surgical wound than bowel contents, and in spite of so-called "aseptic" methods in large-bowel surgery a considerable percentage of wounds are contaminated. Sutures were discharged in 7 per cent of our cases, but the amount of wound infection and the small incidence of hernia, occurring only about colostomy openings, are favorable omens. All wounds under the heading "suppurative appendicitis" are listed as infected, for bacteria unquestionably invade the wounds of all such patients.

TABLE 1. *Summary of All Material Studied.*

TYPE OF SURGERY	NO. OF CASES	CASES WITH WOUND INFECTION	CASES WITH DISCHARGED SUTURES	CASES WITH HERNIA
Biliary surgery	100	4	6	0
Chronic cholecystitis 63				
Acute cholecystitis 37				
Gastric resections	45	0	0	0
Large-bowel surgery	43	3	1	2*
Hysterectomy	20	0	1	0
Operations for suppurative appendicitis	55	16	10	0
Totals	263	23	18 (7%)	2

*1 colostomy; 1 Mikulicz procedure.

Table 2 covers the first division of surgery, that of the biliary tract. Even under the conditions of chronic cholecystitis, some bacteria are almost invariably present in the biliary passages. In 3 per cent of the cases of chronic cholecystitis, silk sutures were discharged from the wound, and in 11 per cent when we were dealing with an acute infectious condition. In the latter group, sutures were discharged for as long as six to eight months, but there were no cases of hernia or disruption, and none of the wounds were seriously involved by infection.

TABLE 2. *Biliary Surgery.*

DATA	NO. OF CASES
Chronic cholecystitis and cholelithiasis	
Operations	63
Wound infection	0
Tender wounds	3
Silk sutures discharged*	2 (3%)
Hernia	0
Acute cholecystitis and cholelithiasis	
Operations	37
Wound infection	4
Tender wounds	2
Silk sutures discharged†	4 (11%)
Hernia	0

*One case for 6 mo.
†Two cases for 6 mo., 2 cases for 8 mo.

Table 3 refers to gastric surgery, including surgery of the duodenum. Here, at least in the cancer cases in which hydrochloric acid was absent, there was gross contamination in the wounds, yet in no case was there the slightest trouble with the wound — infection, hernia or the discharge of silk sutures.

Table 4 deals with large-bowel surgery, in which we have not resorted to the use of so-called "aseptic anastomosis," believing that fatal peritonitis following bowel surgery is always due to a gross leakage from the suture line rather than to contamination occurring at the time of operation.[15] Extreme care is taken in preparing the bowel wall for the suture line. The portions of bowel are divided by the cautery between Payr clamps, and extrusion of the bowel contents when the clamps are removed is prevented by a soft, spring-blade enterostomy clamp placed distal to the suture line; moreover, the field is always kept completely walled off. In this group 2 per cent of the wounds discharged some silk sutures. In 2 cases hernia developed, in one about a colostomy opening, in the other about a Mikulicz procedure; in each of these operations the discharge of fecal contents usually, but not always, seriously contaminates the wound.

TABLE 3. *Gastric Resections.**

DATA	NO. OF CASES
Operations	45
Wound infection	0
Tender wounds	0
Silk sutures discharged	0
Hernia	0

*Thirty cases of cancer; 15, of ulcer.

TABLE 4. *Large-Bowel Surgery.**

DATA	NO. OF CASES
Operations	43
Wound infection	3
Tender wounds	0
Silk sutures discharged	1 (2%)
Hernia	2†

*Thirty-two cases: 24 involving the colon; and 8, the rectum.
†1 colostomy; 1 Mikulicz procedure.

TABLE 5. *Hysterectomy.**

DATA	NO. OF CASES
Operations	20
Wound infection	0
Tender wounds	0
Silk sutures discharged	1 (5%)
Hernia	0

*Fifteen cases, supravaginal; 5 cases, total.

Table 5 covers the field of gynecology; here also, in a wound closed without drainage, some silk sutures were discharged. However, the usual course of the convalescence was so smooth that we

have become better satisfied with silk closure than with catgut. In this field, opening the vagina or amputating the cervix may expose the wound to infectious material.

Table 6 presents a thorough study of 55 cases of acute suppurative appendicitis, including 25 of perforated appendicitis with diffuse peritonitis, 20 of gangrenous appendicitis with purulent fluid and

TABLE 6. *Operations for Acute Suppurative Appendicitis.**

DATA	NO. OF CASES
Operations	55
Drained wounds	5
Wound infection	16
Prompt healing	39
Delayed healing (2 mo. or more)	14
Silk sutures discharged	10 (18%)
Hernia	0

*Twenty-five cases, perforated; 20 cases, gangrenous; 10 cases, with abscess.

local peritonitis and 10 of appendicitis with abscess formation. In all cases positive cultures of *Escherichia coli,* nonhemolytic streptococcus or enterococcus were recovered at the time of operation. In only 5 cases was drainage of the peritoneal cavity used. All the patients were operated on through a right oblique muscle-splitting incision. In 5 cases the peritoneum was closed with a continuous suture of fine silk; in the remainder it was closed with a continuous suture of catgut. In all cases the muscular and fascial planes were closed with interrupted sutures of fine silk. It is our practice to close the upper layers of the abdominal wall very loosely when gross infection is present. In 20 cases the fat and skin were left open, and the wound edges were packed lightly with gauze impregnated with vaseline, or were covered with sponges wrung out in physiologic saline solution.

In 39 patients the wound healed promptly over periods varying from twelve days to four weeks, the average being about twenty days. In no case was the use of silk responsible for prolonging the hospital stay. In 2 cases the continuous silk suture used in the peritoneum was discharged before the sixteenth postoperative day. Had this suture not been extruded, it is possible that healing might have been delayed. There were 14 cases of delayed healing. Of these, 6 healed within three months and gave no further trouble; in 2 the wound did not finally close for six months. Four other patients, although the wound healed promptly, continued to have trouble with occasional reopening of the wound and discharge of sutures; this continued in 1 case for six months, and in the other for a year.

Only 2 of the 14 patients were seriously incapacitated because of continued trouble with the wound. One patient was operated on again, and a chronic sinus tract was excised; no silk was found. This wound had been drained at the time of operation, and it is impossible to say whether or not the silk used was responsible for the faulty healing. In the other 12 cases of delayed healing the patients appeared to suffer no great distress. Only 4 had to return for dressings after discharge from the hospital; in the others the wounds healed promptly but continued to break open with the occasional discharge of a suture. This caused no great inconvenience to the patients and in no way interfered with the strength or final cosmetic appearance of the wound. It is fair to state, therefore, that in 55 cases of acute appendicitis in which fine silk was used, only 2 patients suffered serious distress from the use of nonabsorbable sutures. The majority of the wounds healed promptly and well, in spite of gross contamination, and none of the patients developed a postoperative hernia.

Lastly, the statistical data show that in the presence of gross infection wounds heal much better with less reaction and less tendency to break down when the skin is not closed. Table 7 shows that in

TABLE 7. *Operations for Acute Suppurative Appendicitis: Comparative healing of silk wounds with and without skin-closure.*

TYPE OF CLOSURE	NO. OF CASES	CASES WITH DELAYED* HEALING
Primary closure	35	12 (34%)
No sutures in skin or subcutaneous fat	20*	2 (10%)

*The more seriously infected.

infected wounds when the skin is closed, the percentage of delayed healing rises abruptly; whereas when no sutures are placed in the skin, there is no delay in healing. This is a technical point of some importance.

During the period of this study catgut was used throughout the wound in 18 cases of acute suppurative appendicitis. Table 8 compares the

TABLE 8. *Operations for Acute Suppurative Appendicitis: Comparative healing of infected wounds sutured with catgut and silk.*

TYPE OF SUTURE	NO. OF CASES	CASES DRAINED	CASES WITH PROMPT HEALING	CASES WITH DELAYED HEALING	CASES WITH DISCHARGED SUTURES	CASES WITH POSTOPERATIVE HERNIA
Silk	55	5	39	14	10	0
Catgut	18	5	16	1	2	3*

*Only 1 of these was drained.

healing of such infected wounds sutured with catgut and with silk. Ten of the catgut wounds were in cases with perforation, 4 with abscess and 4 with gangrene and local peritonitis. Sixteen healed promptly, but the average period of healing

was slightly longer than that for the 39 silk wounds that healed promptly. In 1 catgut wound healing was delayed for three months, at the end of which time a catgut suture was removed. In another the wound healed well, but one year later a superficial abscess developed and a small knot of catgut was discharged. Of more significance is the fact that in this group of 18 patients there were three postoperative hernias and a weakened abdominal wound, with a broad scar but no definite hernia. Five cases in this group were drained, but only one of the hernias developed in a drained wound.

It is our impression that some factor other than infection plays a role in the discharge of nonabsorbable sutures. We say this because of the great frequency with which grossly infected wounds heal without discharging sutures, and because of the occasional clean wound in which no suppuration develops but from which nonabsorbable sutures are sometimes repeatedly discharged. The placing of such sutures too close to the skin favors their discharge from clean wounds. The possibility that allergy to silk might play a part has been investigated, but we have found no case of sensitivity to this foreign protein in the silk sutures in a series of 6 patients whose wounds repeatedly discharged silk. In the present state of our knowledge it must be said that a few patients do not tolerate foreign bodies in the tissues, and that regardless of infection silk sutures may be discharged.

Discussion

It is not our intention to advocate the widespread use of silk in infected wounds. However, this study demonstrates that silk can be used in the presence of infection without the disastrous results that are often attributed to it, and with certain advantages that merit consideration. The degree and severity of the inflammatory reaction are less when silk is used. This statement is based on laboratory evidence and on a clinical impression gathered from the present study. The degree of infection in the immediate postoperative course was less. Moreover, silk wounds are stronger. In the presence of infection catgut is often rapidly absorbed, whereas silk, despite suppuration around it, continues to hold the tissues together. This is an observation that we have made repeatedly in both the laboratory and the clinic. Consequently one may expect fewer hernias in infected wounds when silk is used. In the presence of infection, when minimizing the degree of suppurative infection and maintaining a strong wound are of great importance, silk is preferable to catgut. Thus in an elderly patient after resection of the colon, even though contamination of the wound may seem likely, the use of silk will not only reduce the likelihood of suppuration but also ensure a stronger wound, with less danger of either evisceration or hernia. The discharge of a suture from the wound in such a patient is a small price to pay for superior healing.

Conclusions

Material is presented from the major fields of surgical endeavor in which infection is commonly to be expected and in which small silk sutures have been used. The evidence in this series agrees with that of controlled laboratory experiments in indicating that in infected wounds the use of fine silk sutures instead of catgut sutures, results in a more permanent and solid healing. The results also reveal that in some cases, even when healing has been complete, the extrusion of silk sutures may continue. The factor leading to this extrusion is not solely the amount or type of infection. In our opinion silk may be used with value in certain surgical fields when infection is present.

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Discussion

Dr. Robert R. Baldridge, Providence, Rhode Island: The paper by Drs. Cutler and Dunphy is certainly fascinating and daring. I am glad that they have not advocated the use of silk in infected wounds by the general surgical public, for such a recommendation by such eminent authors might well result in the return of the crochet hook to the place of prominence it once held in the surgeon's armamentarium. I do not believe that such excellent results as the authors report could be obtained except

by master technicians — master surgeons — working under the most favorable circumstances.

It is a question in my mind whether such technic could be applied in a general hospital, for example, where the surgical teams change every few months. As Dr. Whipple has pointed out, the use of silk in clean-wound surgery requires special training, and I believe that its use in infected wounds could be undertaken only by such men as have had previous training and are skilled in the employment of silk in clean wounds.

Halsted's principles of sharp-knife dissection, careful hemostasis, avoidance of tension and of mass ligatures, use of the finest suture material and the avoidance of all unnecessary trauma would certainly be more necessary in an infected than in a clean wound.

At the Rhode Island Hospital we do not yet dare to use silk except on rare occasions, even in clean wounds, although, as the authors have pointed out, we have no hesitation in adopting it in gastrointestinal surgery. At first glance this may appear inconsistent. The well-known powers of resistance of the peritoneum, as compared with those of muscle, fascia or fat, however, probably explain, at least in part, the freedom from complications.

A proper discussion of this paper must include the subject of wound healing in general. It should be emphasized that many factors aside from the suture material used determine whether or not a given wound will heal well. In addition to the fineness, strength and blandness of the suture material, we must consider the nature of the wound, the character and virulence of the bacteria, the skill and experience of the surgeon and the condition of the patient as well as that of the wound. The presence of dehydration, hypoproteinemia, avitaminosis, anemia, old age or chronic disease may interfere with healing in the most skillfully sutured incisions; and conversely, as we all know, most wounds heal without infection regardless of the suture material used, provided the patient is in good general health and his surgeon reasonably skillful.

I should like to ask the authors if they will elaborate their meaning of the word "infection" as opposed to "contamination." I have operated, as we all have, on a great many patients with peritonitis. There is infection within the peritoneal cavity, but there is not infection within the wound. When we sew up such a wound, we are unquestionably repairing a contaminated wound. The cleanliness of all wounds, however, is only relative, and as Ives and Hirshfeld and others have shown, bacterial contamination may be demonstrated in as high as 90 per cent of all so-called "clean" wounds. I bring up this point to emphasize that it is the degree of contamination and the virulence of the infecting organism, not the fact that they are present, which we must consider. Would not "The Use of Silk in Contaminated Wounds" be a more exact expression of the meaning of the authors?

Dr. Claude C. Kelly, Hartford, Connecticut: I was trained in the surgical technic used in Baltimore, and was told that many surgeons had abandoned the use of silk sutures in the presence of infection because they had later removed silk from wounds. Silk does not have to be braided or thick to result in extrusion and infection. I recall a case in which a piece of silk was extruded on reopening a wound a year after operation; the wound then healed at once.

I formerly used silk in the ligation of all the vessels in radical breast operations, until on excising the mass in a few suspected recurrences I found within it a silk ligature and a drop of pus. There was nothing in the wound to indicate infection.

Judging from what Dr. Cutler has said, I was wrongly trained in the use of silk, and it is remarkable that the results he describes were obtained. However, I believe that silk should not be used by surgeons inexperienced with it, especially in infected wounds.

One error in the employment of silk sutures is that of leaving long ends beyond the knots. Leaving some of the skin open has proved valuable in many infected wounds. Coller tells of using wire instead of silk, and of leaving wounds open from twenty-four to forty-eight hours; he obtained the best results when the wound had been left open for twelve to twenty-four hours.

The results which Dr. Babcock has obtained with wire have been excellent, so far as I have been able to note. I also have used it, but I am sure that fewer of my patients would have hernias today if I had employed silk. Nevertheless, I do not believe that at this time it should be used indiscriminately.

Dr. Cutler (closing): Dr. Baldridge wrote me before this meeting to remind me that when his group of students worked in the dog laboratory they closed all layers with catgut. That was a good point. It represents the fact that in twenty-five years I have persuaded myself, if no one else, that my results in all fields of work are better with silk than with catgut.

I appreciate fully the point emphasized by Dr. Kelly that the technic is more important than the suture material. Fine silk breaks if the surgeon is rough. This has been emphasized repeatedly not only by Dr. Halsted in the early days but also by Allen Whipple, of New York City, who has been completely won over to the use of silk suture material in our own time. We often demonstrate to our house staff the superiority of silk over catgut by having the same operator utilize silk on one side and catgut on the other in the repair of a double inguinal hernia; one always finds more reaction in the catgut wound. The ideal conditions for perfect wound healing, which is the minimum reaction, are to be found when silk is used, although the operative technic of course plays a part.

Dr. Kelly has objected to having to remove silk knots which are occasionally discharged even in uninfected clean wounds, although he admitted that he might have fewer hernias if he used silk throughout. I may have a different point of view, for I would rather lay myself open to criticism from a patient who thought there was something wrong with the wound than have him undergo a secondary operation for hernia.

That foreign bodies can be tolerated in wounds we know well. In 1938, when I attended a surgical meeting in Brussels, I spent a day and a half with Roux-Berger at one of the great hospitals in Paris, and to my consternation saw him bury French silkworm gut in wounds, yet the wounds healed very well.

As to contamination, I agree with Dr. Baldridge that it is a matter of degree. The breaking down of a wound relates to the virulence of the organism and to the resistance of the host. Both these criteria may be altered by the presence of a foreign body.

Your president has said that "he hasn't been sold yet on the use of silk"; this reminds me of the attitude taken by our graduate students. Each year I give a course in technic to students in the graduate school, and they operate on animals and observe work in the hospital. Every year a number of them are won over to silk after what they experience and see. On their return home they write letters and say that if they use silk, they may be the only persons using it in their communities, and want to know whether, if the silk sutures come out, I will be willing to come and testify that it was a proper procedure.

EXPERIENCE WITH FEMORAL-VEIN LIGATION FOR PROPHYLAXIS OF POSTOPERATIVE PULMONARY EMBOLISM*

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UNTIL the enigma of postoperative thrombosis is solved, surgeons must be concerned with the prevention of pulmonary embolism. This is a report of the experience of the surgical staff of the Beth Israel Hospital during the last half year with 10 cases of deep peripheral venous thrombosis for which either the popliteal or femoral vein was ligated as a prophylaxis against embolism.

In recent years Homans[1–3] has written a great deal about thrombosis of the deep veins in the leg, and has stressed the sinister relation between bland thrombosis and pulmonary embolism; the cases reported by him were all ambulatory and were associated with minor injury or strain. All our cases occurred after operation.

This presentation is not concerned with the more familiar condition of iliofemoral thrombophlebitis (milk leg) and peripheral thrombophlebitis. In these there is likely to be an inflammatory reaction in the vein wall, a more marked clinical reaction, an adherent thrombus and, thus, less danger of embolism.

The syndrome now to be discussed is more treacherous. Clotting apparently begins within the veins among the calf muscles and may progress rapidly to the femoral region — or even higher. It is the loosely attached thrombus or its free-floating propagating tail that breaks off and journeys so dramatically to the heart and lungs.

The onset is usually mild and insidious, with little or no change in the chart. The patient sometimes complains of pain in the leg, usually in the calf region, occasionally in the heel. The pain varies in intensity from slight to severe discomfort. One of our patients, after an infarction, admitted mild pain in the calf of four days' duration, but had never complained of it to the house officers. The duration of the pain likewise varies. In most patients it lasts from two to eight days. The leg pain may disappear after several days, only to be followed by embolism or by pain in the femoral region, which signifies extension to the femoral or iliac vein.

On physical examination one finds tenderness on deep palpation of the calf muscles, and forceful dorsiflexion of the foot causes pain in the calf or popliteal region (Homans's[2] sign‡). A swelling of the leg or slight edema over the shin and ankle may occur while the patient is in bed — in 2 cases in our group of 10 — and may be related to an inflammatory reaction. Cyanosis, even temporary, is rare. We have found no impressive evidence of sympathetic hyperactivity and have not done lumbar novocain injections.

In this series of 10 cases the sexes were equally divided. The ages varied from thirty-five to seventy, the average being fifty-one years. Ninety per cent occurred in the right lower extremity. The complication was associated with no particular type of surgery, having followed biliary-tract operations in 4 cases, hernia operations in 2 and operations on the stomach, on the colon, for ruptured intervertebral disk and for a gynecologic condition in 1 each.

The first manifestation of pain in the calf in this group appeared five to fifteen days after operation, the average being 11 days. The diagnosis of deep thrombosis was made after infarction or embolism in 3 cases.

I believe that deep thrombosis in the calf occurs more frequently but is less often recognized than iliofemoral thrombosis, and that the former is the more frequent source of pulmonary embolism. The diagnosis is obviously difficult in many cases, and is almost impossible in others.

Fortunately, deep thrombosis does not usually result in embolism. But because it may, and because we have witnessed several fatal embolisms during a waiting period of indecision, it is now our policy to divide and ligate the femoral vein as soon as possible after making a diagnosis of deep thrombosis in the leg. The vein is divided even if the diagnosis is made after infarction or embolism has taken place, for the accident is likely to recur.

Division of the vein removes the danger of embolism and prevents extension of the thrombotic process beyond the operative site. From the viewpoint of convalescence, the patient becomes ambulatory earlier. In our series the femoral vein was divided in 8 cases, the popliteal in 2.

The operation is performed under novocain infiltration, and a vertical 10-cm. incision is made in the femoral triangle over the femoral impulse. The

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‡"There is a sense of discomfort when the tendo Achillis is put upon the stretch by forced *passive* dorsiflexion of the foot. The discomfort is felt back of the upper calf and knee."

artery is exposed, and the vein is found under it in the upper part of the wound. Several large tributaries, including the profunda vein, are usually seen. The following conditions may be present.

The vein may appear and feel normal. A silk ligature is tied just distal to the profunda vein, or any other large tributary, and the vein is opened below this point. The amount and speed of hemorrhage should be some indication of the extent of venous occlusion. In some of these patients, I have injected an opaque solution (Diodrast) into the distal end of the severed vein in an attempt to visualize the upper end of the thrombus by immediate x-ray films. Usually a section of the vein was removed for microscopic study.

The vein may contain a soft unattached thrombus. This is gently removed with a suction tip introduced through a small longitudinal incision.

The vein may be firmly thrombosed and may be surrounded by inflammatory exudate. In this situation the operation is without prophylactic value. Since this thrombophlebitis is considered the source of a vasospastic reflex,[4, 5] which is one of the most important factors in the production of the clinical manifestations, a portion of the involved vein should be resected.

Homans's sign, when present, has persisted from two to six days after operation and in fact may become more intense. The temperature and white-cell count may also rise after operation. Once the diagnosis has been made the extremity is elevated, and this position is maintained after operation. If there are no general contraindications, I permit the patient to get out of bed in a few days, and I have advised the subsequent use of woven bandages because of the tendency to slight swelling in ambulatory cases.

Case Reports

Case 1. M. C. (B. I. H. 50003), a 70-year-old man, was operated on for an incarcerated inguinal hernia on November 18, 1939. Nine days later he sat in a chair. On the following day, he complained of pain in the right calf. Examination showed deep tenderness and a positive Homans's sign. There was no fever or swelling. The condition was diagnosed as a deep thrombosis, and femoral-vein ligation was recommended and refused. On the 12th postoperative day, the temperature rose. Three days later, in searching for the cause of this fever, it was noted that the calf tenderness and pain had disappeared, but distinct tenderness could be made out in the right femoral triangle. There was no edema anywhere. The patient agreed to surgery. The femoral vein was found to be thrombosed and was surrounded by an organizing exudate. A biopsy specimen of the vein was taken. The temperature became normal in 48 hours, and the patient went home 4 days later.

The pathological report (S39-2496) read: "Beginning organization."

Comment. This case is of interest because of the sequence of events. The original findings in the right leg were typical of bland thrombosis. Five days later the process had extended to the upper thigh, and was associated with fever but no pain. The operation at this time was without prophylactic value because the thrombus was already attached to the vein wall at the level of the operation.

Case 2. C. W. (B.I. H. 49274), a 35-year-old woman, on October 3, 1939, had a cholecystectomy performed under Nupercaine anesthesia. She dangled her legs on the 11th day, and was up in a chair on the 12th. She was discharged afebrile on the 13th day. She was readmitted 2 days later with severe pain in the right calf of 24 hours' duration. Physical examination showed marked tenderness in the right calf plus pain on dorsiflexion. The white-cell count was 10,000. She was immediately operated on. Division and ligation of the right femoral vein were done with injection of Diodrast. The pain in the calf persisted for 5 days, and she was discharged 12 days after operation, wearing an Ace bandage. There was no swelling.

The pathological report (S39-2182) read: "Negative vein."

The x-ray report (79999) was: "Injected fluid stops abruptly 3 cm. below the division of the vein below the knee."

Comment. This patient was a physician who diagnosed her deep thrombosis. The prophylactic ligation afforded great mental comfort and assured early rehabilitation. Four months later she reported slight swelling unless she wore a woven stocking.

Case 3. H. O. (B. I. H. 49256), a 47-year-old married woman, underwent a cholecystectomy on September 30, 1939, under Nupercaine anesthesia. On the 11th day after cholecystectomy she dangled her legs. That afternoon the temperature rose to 100.2°F., the pulse to 130, and the respirations to 30. There was slight difficulty in breathing. The patient complained of a "heaviness over the breastbone, like a cold coming on." The next morning the pulse, temperature and respirations were normal. At 4 p.m. she suddenly went into collapse and was placed in an oxygen tent. The blood pressure was 45/30. She was in shock most of the evening and received oxygen, papaverine and atropine. The next morning (the 13th day after operation) there was tenderness in the right calf and the patient admitted that she had had some pain there for 4 days. She was taken to the operating room in bed and wearing an oxygen mask. The right femoral vein was exposed and divided. She was discharged well on October 29, 1939, 30 days after the gall-bladder operation.

The x-ray report (79866) on October 13, 1939, was as follows: "Pulmonary infarction."

Comment. The first infarction was mild but was followed in 24 hours by the severest nonfatal embolism in this series. This might have been prevented if the legs had been examined for deep tenderness. The pain in the right calf had been so moderate that the patient had not bothered to report it.

Summary

Failure to divide deep veins containing bland clots may result in major catastrophes. I believe that some of the operations in this small series prevented embolism and therefore justified those

which may have been unnecessary. Earlier rehabilitation has been the rule.

This experience with a perplexing group of cases is presented in the hope that interest in the problem involved — diagnosis and treatment — will be intensified. Further clarification and evaluation are needed.

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MEDICAL PROGRESS

SYPHILIS

C. Guy Lane, M.D.,* and G. Marshall Crawford, M.D.†

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THE usual large number of articles on syphilis appeared during the past year, many of which cannot even be touched upon in this review. We are entering an era in which the public-health aspects of this disease will play an extremely important part as the armed forces of the nation gather in increasing concentrations in the various camps throughout the country. At the same time, the private physician continues to play a leading part in the detection and control of syphilis.

Public Health

The role of the private practitioner in controlling syphilis has recently been discussed by Stokes.[1] He believes that local physicians are co-operating well in the control campaign, but also points out that if co-operation fails, the taking over of the problems of syphilis by the state is inevitable. It must provide diagnostic mechanism, drugs and equipment needed for treatment, and must inevitably supply the epidemiologic contact-tracing service (Massachusetts does supply this service). Stokes also believes that the practicing physician should be provided with dependable consultation and should keep medical control of the patients whom he refers. Certainly if the state provides these aids, the medical fraternity should be able to co-operate to the fullest extent in return. A serologic consultation service is already being maintained in some states. Vonderlehr[2] writes in a similar vein.

Syphilis in industry has received a great deal of attention. Russell[3] stresses the economic as well as the social problem. Since there are over 15,000,000 workers in the mining, metal and manufacturing trades in the United States, this author points out that a syphilis program covering this group and their families would reach about half the people of the country. Such a program is a colossal task, to say the least. Education may well play the most important role. Elimination of syphilis from industrial workers will not only prolong their lives but make them better producers. A step in this direction was made in the cogent syphilis-control program reported by Wilzbach.[4] A Cincinnati industrial leader formed a committee of his colleagues to promote the examining of employees for syphilis. Routine blood testing revealed an incidence of 44 cases per 1000 in contrast to only 6 per 1000 discovered when checked on suspicion only. An inexpensive plan was worked out which is paid for by the employer. Only the doctors and the worker know the result. Co-operation by the labor unions was procured. So far no employee in Cincinnati has lost his job on account of a positive serologic report. Educational lectures are preliminary and follow-up features. Many plants adopted a blood test as part of examination at the time of employment, but with the agreement that syphilis was not sufficient grounds for rejection of an applicant. It is obvious that certain qualifications as to the infectiousness and disabling lesions are bound to modify this agreement.

Edwards and Kinsie[5] have called attention to illegal and unethical practices extant among pharmacists. A survey of 1151 drugstores in 35 cities revealed that only 7 per cent of these refused either to diagnose or to sell so-called "remedies" for venereal diseases. This widespread practice, the many charlatans and various unlicensed practitioners are responsible for a great many improperly treated cases. The authors believe that action

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to offset these factors should include the suppression of illegal drugstore activity, the eradication of quackery in medicine and the education of the public. Numerous other reports bear witness to the existence of state-wide campaigns in the proper direction.

An interesting report on the follow-up of cases of early syphilis from the prearsphenamine era is that of Willners.[6] Six hundred and sixteen patients seen in Stockholm in 1912 and 1913 with early syphilis received mercury, only, and in later years an occasional injection of other drugs. Three fifths of these patients were living and traced in 1938. An adequate comparison of the effect of therapy was not feasible, but the death rate of the entire group was found to be 32 per cent higher than that among the general population.

The annual report of the Surgeon General of the United States Navy[7] for 1938 is of interest. Removal of punitive measures imposed on enlisted men contracting venereal diseases revealed an increased incidence of 21.2 per cent. This probably represents the true number of cases. The average patient was sick 2.6 days less, however, and there were fewer complications. Educational work is being increased among enlisted men and may in time reduce the incidence of disease.

Immunity

There are some who maintain that early syphilis should be allowed to go through the secondary stage before treatment is instituted. This theory must be held in abeyance, however, until more is understood about immunity in syphilis. A notable step in the study of immunity is reported by Turner,[8] who found that syphilitic rabbits develop humoral antibodies to syphilis during the course of their infection. Kemp,[9] reviewing immunity in syphilis, calls attention to the fact that it is slow in development and does not become evident until the infection has been present for some weeks. Treatment instituted before the immune stage is established may abruptly terminate, or at least delay, its development, and leads to recurrences. Kemp states that late syphilitic lesions are evidence of breakdown in immunity. The difference of immunity maintained by various tissues determines the incidence of later manifestations of syphilis. The Negro race has a high degree of immunity except for the tissues of the cardiovascular system. Women have a stronger immunity than men; Kemp's studies indicated that the female sex hormone may be responsible for this. There are no other definitely known factors which influence immunity in syphilis.

Serology

There is a continued attempt on the part of the Committee on the Evaluation of Serodiagnostic Tests for Syphilis to improve the quality of procedures performed in the state laboratories. The report of this committee for the years 1938 and 1939[10] indicated that the control serologists are maintaining high standards. Whereas thirty state laboratories were unsatisfactory in 1938, only twenty-two were in this category in 1939. The maintenance of high standards by the control serologists in the state laboratories permits a proper checking and evaluation of the performance of the numerous local laboratories.

The Davies–Hinton test for the examination of cerebrospinal fluid is proving fully satisfactory. Brenner[11] reports close agreement of the Davies–Hinton and the Wassermann tests on 2110 consecutive cerebrospinal-fluid examinations. In cases of disagreement the former was found to be slightly more reliable than the latter.

Continued attempts are being made to eliminate the false-positive problem from serologic tests for syphilis. Mohr and Smith[12] studied the supposed daily variations of the reagin content of syphilitic serum, and believe that a fluctuating sensitivity of the tests employed is reflected. They think that the quantitative flocculation technics are valuable in eliminating false-positive reactions in questionable cases. They seriously doubt the value of the provocative test for syphilis. Ingraham and Mayer[13] investigated the effect of the menstrual cycle on the blood serologic test for syphilis. They concluded that false-positive tests during the menstrual period must be a peculiarity either of the individual patient or of the test employed, and are not due to blood changes present in all women.

Quantitative serologic tests for syphilis are being developed with gratifying results. Greene and his associates[14] report a quantitative study of syphilitic serum with Hinton and Kline tests which gives information indicating reagin titers and eliminates zone reactions. Kahn[15] describes a newly developed serologic verification test, which is a modification of the standard Kahn technic. This should help to detect false-positive tests in questionable cases. This test is intended only as a supplementary procedure to the usual diagnostic tests in doubtful asymptomatic cases.

Another step toward increasing the specificity of serologic tests for syphilis is the development of the spirochete complement-fixation reaction. Erickson and Eagle[16] have compared this reaction with the Eagle flocculation and Wassermann procedures. Phenolized cultures of a standard spiro-

chete strain have been found to give positive complement-fixation reactions with syphilitic serums. These authors believe that there is at least a potential superiority in this reaction.

Acute infections have long been thought to be responsible for some temporarily false-positive reports obtained with serologic tests for syphilis. Clifton and Heinz[17] report the finding of 82 children with false-positive or doubtful reactions out of 5620 new patients examined in one year's time at a children's hospital. An acute infection or a severe generalized cutaneous eruption was present in 74 of these patients. These serologic tests returned to normal before or soon after evidences of infection cleared.

Moore[18] has suggested a method of approach to the recognition of the biologic false-positive serologic tests for syphilis. The full text[19] is more than worthy of careful study by anyone faced with this problem. The quantitative serologic test,[14] the Kahn verification test[15] and the complement-fixation test with spirochetal antigen[16] are among the suggested procedures. Although such tests require special laboratory facilities, they may be essential to the solution of some of these cases. It is emphasized that the final decision is a highly individualized problem requiring weeks or months of observation and expert advice. The oft-repeated but pertinent adage that no treatment should be instituted without a definitely established diagnosis still holds.

Clinical Problems

An old and mistaken tenet has been dispelled by Shaw.[20] It was often stated that an extensive cutaneous syphilide provided immunity which protected the central nervous system from syphilis. Shaw's report deals with 70 patients exhibiting cutaneous or mucous-membrane syphilides or syphilis of the bones, or both, of which 15 (21 per cent) had neuraxis involvement. All 15 patients had positive cerebrospinal fluids; 7 exhibited symptoms of neurosyphilis. It is obvious that this type of case as well as all others should have routine lumbar punctures. These findings corroborate the experience of most present-day syphilologists.

A review by Dyar and Dalton[21] describes sixteen different manifestations of syphilis in the eye. According to their statistics syphilis comprises 2 per cent of all eye disease. These various lesions are well described, and the plans of treatment outlined agree with accepted programs of therapy. The importance of syphilis in diseases of the nose and accessory sinuses is emphasized by Smith.[22] After describing the recognized syphilitic lesions of these structures, he emphasizes that several nonsyphilitic diseases of the nose and sinuses may have a syphilitic background that retards their response to customary therapy. It is emphasized that surgery of the nose and sinuses in the presence of syphilis may be followed by a prolonged and unsatisfactory healing period, with a high incidence of secondary infection and excessive scar formation. Syphilis of the stomach is reviewed by Williams and Kimmelstiel.[23] Although uncommon, this lesion should not be lost sight of by physicians in dealing with gastrointestinal complaints, and should not be confused with a penetrating ulcer in a syphilitic patient. It should be strongly suspected when a comparatively young person is found, by x-ray examination, to have a smooth, funnel or tube deformity of the stomach accompanied by other stigmas of syphilis. It is difficult to establish the diagnosis definitely, since the response to treatment is very slow.

So-called "latent" syphilis continues to be an engrossing problem. A paper by Cormia and Lewis[24] deals with the interpretation of the factor of latency. It is stated that latency is generally assumed to indicate a dormant or inactive process, although this rarely happens. The minimum requirements for the diagnosis of latency include a negative physical examination, normal cerebrospinal fluid and a normal fluoroscopic appearance of the heart and great vessels. The authors state that of all cases in which the diagnosis of latent syphilis is made, 30 per cent will subsequently develop signs of activity. Latency may be clinical, pathologic or serologic; yet these phases are relative, rather than absolute, fixed states. An interesting report by O'Leary and Williams[25] deals with the duration of infectiousness of syphilis. It has been a widely used rule of thumb that five years after the acquisition of syphilis the disease is not transmissible regardless of therapy. One thousand one hundred and seventy-five married couples were studied by these authors. At least one of each pair had syphilis, and the conjugal transmission of the disease was interpolated. It was concluded that syphilis may be considered infectious during the first five years of the disease, and that although each year thereafter diminishes the possibility of transmission, the likelihood of conjugal infection does not approach the vanishing point until the tenth year.

Cardiovascular Syphilis

Numerous reports regarding cardiovascular syphilis continue to appear, and they support the previously established concepts of the disease. The great value of adequate routine therapy in preventing cardiovascular syphilis is borne out by statistics. Administration of antisyphilitic treatment after the discovery of syphilitic heart disease should

be carried on carefully within the range of tolerance of the individual patient. Only in the most advanced type of syphilis of the aorta (syphilitic aortic insufficiency and extensive aneurysm formation) is the outlook dim in spite of adequate treatment. The period of life expectancy in these cases, according to Kampmeier and Combs,[26] is not appreciably extended by antisyphilitic treatment. Of the other factors influencing the duration of life, cardiac decompensation is the gravest. Manual labor was shown to accelerate the progress of syphilitic aortic disease.

Neurosyphilis

By now it is surely an accepted dictum that every patient afflicted with syphilis should have a cerebrospinal-fluid examination, sooner or later, according to the stage of disease present when the case comes under observation. Headache following lumbar puncture is a deterrent in many cases. The time consumed and the expense of hospitalization increase the reluctance of both patient and physician. Kulchar[27] believes that cisternal puncture eliminates these objections. He has done 1246 cisternal punctures on 960 ambulatory patients, 80 per cent of whom had no reactions whatever. The usual postpuncture type of headache and occasional pain and stiffness in the cervical region were essentially the only complications encountered. It should be stated that although Kulchar's figures are optimistic, cisternal puncture is not a procedure for casual use by the inexperienced. The skill of a practiced operator is required, and the fact that a fatality can result by puncturing the medulla or dural vessels should serve as adequate warning.

The so-called "tabetic cord bladder" is discussed by Emmett,[28] who promulgates new and very rational concepts. It is pointed out that true incontinence is uncommon, there being merely an overflow from a distended bladder or urgency from urinary infection which has been initiated by urinary retention. In many cases it is difficult to tell whether the atonic bladder or an obstruction of the vesical neck is the primary factor. The author goes so far as to say that many cord bladders are really cases of simple obstruction of the vesical neck in which tabes dorsalis plays little if any part.

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According to some authorities, congenital syphilis has been responsible for much mental deficiency. This has not been the experience of syphilologists as a whole, however, and a recent report by Hays[32] is enlightening. A review of statistics covering 22,313 cases of feeble-mindedness revealed syphilis in only 4.83 per cent of institutional cases. This is not a high percentage. The high death rate among congenital syphilitic infants may remove many potential feeble-minded cases. On the other hand, perhaps many of these patients would have been feeble-minded without the presence of syphilis. The United States Public Health Service[33] has published its seventh supplement to *Venereal Disease Information* entitled "Syphilis in Mother and Child." This brochure covers the problem of syphilis in the pregnant woman in a concise but most instructive manner, and includes congenital syphilis handled in the same fashion. This and the previous supplements mentioned in preceding syphilis progress reports are obtainable for an extremely modest sum, and should be most useful as a brief outline for the general practitioner.

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There is a tendency among some writers to hold that all offspring of syphilitic mothers who did not receive adequate therapy for syphilis during pregnancy should be routinely treated for syphilis. This dictum we would distinctly deprecate. Many of these infants, if carefully followed, will be found to be free of the disease. The maxim that treatment for syphilis should not be instituted until the diagnosis is unequivocally established is fully as applicable in congenital disease as in the acquired form.

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Roentgenographic evidence in the bones of the newborn holds a justly established place in the diagnosis of congenital syphilis. Christie[35] has

shown, however, that administration of bismuth to the pregnant woman may be responsible for possibly misleading shadows in the x-ray plates of the bones of the offspring. He points out that since conditions other than syphilis may bring about roentgenographic changes in the bones, confirmatory evidence of syphilis is the more important. Whitridge[36] clarified this problem by the administration of weekly injections of bismuth salicylate in oil in the customary dosage for not more than eight injections during the last trimester of 12 nonsyphilitic pregnant women. Roentgenograms taken within the first week of life showed definite roentgenographic changes near the ends of the long bones in 9 infants, consisting of transverse bands of increased density. Evans[37] points out that the presence or absence of osseous lesions, as well as other evidence of syphilis, depends on the length of time of infection of the fetus prior to delivery. Thus a child born free of all manifestations of congenital syphilis might not develop such evidence for several weeks or months after birth. This author emphasizes the possibility of making a false diagnosis of syphilis from improper interpretation of changes occurring in the metaphyseal areas which may be due to several nonsyphilitic conditions. In the second or third month of life these changes may become detectable and can be most confusing.

Ariboflavinosis has been found to cause corneal lesions similar to interstitial keratitis. Kruse et al.[38] found that riboflavin hastens response to arsenical therapy in syphilitic interstitial keratitis, and speculated on the possible interrelations.

Therapy

In the field of treatment for syphilis the past year has been productive of the usual reports on various new drugs, the follow-up of studies on drugs already in use and the results obtained. These statistics are in agreement with previous publications and do not warrant further comment.

Hyperpyrexia is the treatment par excellence for some forms of neurosyphilis, notably dementia paralytica. A great burden would be lifted if more fever therapy could be carried out before such cases reach the degenerative stage. Hyperpyrexia, however, is fraught with too many pitfalls, and the incidence of fatalities, even under ideal hospital care, is still sufficiently high to make it too hazardous a procedure to be regarded lightly.

A long-range comparison of malarial and artificial fever in the treatment of paresis is reported by O'Leary and his associates.[39] An evaluation was made of the clinical and serologic results of these two types of fever therapy in 1100 malarial treated cases and 320 patients who received artificial fever. With either form of therapy the chances of clinical remission were 1:2 in mild cases and 1:4 in intermediate cases. In severe paresis only a 1:100 chance was provided by malaria, whereas artificial fever offered a 1:10 chance. It cannot be overemphasized that the sooner treatment is instituted the better the outcome. The crude death rate within three months of the time treatment was instituted was 13 per cent with malaria and 8 per cent with artificial fever. When complete remissions were attained with either form of therapy, they were maintained in 95 per cent of the cases. Both blood and cerebrospinal-fluid serologic results roughly parallel the clinical results. It was found that malaria combined with chemotherapy provided twice as many remissions. A negative blood serologic test was conclusively shown not to indicate the status of the cerebrospinal fluid.

Brunsting and Love[40] report a useful finding in the tempering effect of bismuth on therapeutic malaria. It was found that 0.1 gm. of sodium bismuth thioglycollate (Thio-bismol) has a definite controlling influence on the sequence of paroxysms of therapeutic malaria. This finding is of especial practical value in those cases in which there is a prolonged slow prodromal rise in temperature and in which a double tertian strain gives rise to daily paroxysms. Following a single injection of Thio-bismol these cases settle down to the usual cycle, with a paroxysm every other day. The severity of malarial therapy can thus be tempered to the tolerance of the patient, and this modality can be applied to a wider range of cases. Cole and his associates[41] corroborate the findings of the preceding authors. The death rate can be distinctly reduced by employing this procedure. Both reports point out that Thio-bismol is not offered as a substitute for quinine in terminating malaria. Repeated injections of bismuth stopped therapeutic malaria for long periods but did not cure it.

The treatment of neurosyphilis in parallel series of 256 cases by Tryparsamide and 314 cases with sodium succinanilo-methylamide-p-arsonate (Neocryl) is reported by Ross.[42] The standard dose of each drug was 3.0 gm. given intravenously at weekly intervals. Twelve months after the end of treatment the results obtained with Neocryl were in no way inferior to those of Tryparsamide. Seventy-eight cases (30 per cent) of those treated with Tryparsamide exhibited toxic manifestations, whereas only 27 cases (9 per cent) of those treated with Neocryl had toxic reactions. It was chiefly in its relative innocuity to the optic nerve that the advantages of Neocryl became apparent. Over half the unfavorable reactions to Tryparsamide were ocular, and 3 cases of complete blindness developed.

Neocryl was accountable for only 1 case of visual damage. If this drug is as effective and at the same time as innocuous as this report indicates, it will indeed be a most beneficent boon. Further study is certainly warranted.

Massive-dose intravenous chemotherapy of syphilis, the so-called "five-day treatment," has been carried on by its instigators. The Council on Pharmacy and Chemistry of the American Medical Association[43] commends this work for its great possibilities. The frequency of toxic reactions, some of them grave in type, requires the adoption of a conservative attitude, however. The council believes that this form of syphilis therapy is still in the experimental stage, and should be confined to large university and public-health clinics or suitable hospitals organized to carry out this project on a recognized experimental plane. Current editorial comment[44] is in full agreement with this opinion. In last year's report[30] we suggested an observation period of ten or fifteen years before final results can be evaluated. There is no reason to change this criterion. Although massive-dose arsenotherapy may prove to be of major importance, the factors of drugs, duration of treatment and elimination of toxic recurrences remain as obstacles. A more suitable type of drug may yet be found, or more effective combinations of existing drugs may prove more satisfactory. It is certain that if these procedures are properly worked out, the economic implications alone will be of tremendous importance.

Treatment Reactions

An interesting paper by Epstein[45] reports the cases of 2 industrial workers with previous symptoms of plumbism who suffered recurrences following the administration of bismuth for syphilis. The question was raised as to whether bismuth replaces lead stored in the bones, thereby mobilizing the latter. The implication of this report in regard to industrial syphilis is obvious. A possible clue to the mechanism of this phenomenon is found in the report of Corson and his associates,[46] who found that the administration of ammonium chloride brought about the mobilization of bismuth. An increase in the urinary output of calcium accompanied this excretion. The urinary calcium is apparently drawn from the bones, for the blood calcium was not affected. Since calcium and lead are known to be deposited and eliminated in parallel, it is suggested that possibly calcium and bismuth also act similarly. Should this be so, it would explain the effect of bismuth on latent plumbism, as reported by Epstein. An interesting conjecture comes to mind as to the possible effect of ammonium chloride on bismuth stomatitis.

Early acute arsenical erythemas ("erythema of the ninth day") are becoming more widely recognized. Thomas and Cañizares[47] report 2 cases in which a second erythema occurred following the later administration of arsenic. It is recognized that in the majority of cases in which an uncomplicated ninth-day erythema occurs, subsequent administration of the arsphenamines is satisfactorily tolerated.

Blood dyscrasias following arsenical injections were studied by Falconer and Epstein,[48] who found that 5 of 6 patients developing thrombopenic purpura from arsphenamines could tolerate Mapharsen. These authors believe that allergy is back of these reactions. They found vitamin C to be useless. Leukocyte and platelet counts of the peripheral blood were depressed more by the arsphenamines than by Mapharsen.

A review by Stephenson and Chambers[49] of the toxic effects of arsenical compounds as used in the United States Navy throws interesting light on several drugs. There were forty reactions of various types among 123,176 doses. The relative occurrence was as follows: acetarsone 1:26, neoarsphenamine 1:2240 and Mapharsen 1:6108. There were 3 deaths, all with neoarsphenamine. Arsenical dermatitis in some form occurred in 62.5 per cent of the above reactions. Schoch et al.[50] studied the use of Mapharsen following dermatitis from the arsphenamines. They found that the drug could usually be administered successfully to these patients only if their eruptions had been less severe than a generalized exudative exfoliative dermatitis which required hospitalization.

Liver damage from arsenical compounds received considerable emphasis in the past year. Rankin and Marlow[51] studied the extent of liver damage after recovery from postarsphenamine jaundice. They believe that the bulk of the evidence favors the opinion that arsenic has a definitely toxic effect on the liver, but that it more often acts jointly with other factors. Severe arsenical reactions and subsequent alcoholism gave rise to the greatest amount of damage. It is obvious that further arsenical therapy in such cases should be pursued with caution.

The effect of diet in guarding against liver damage from the arsphenamines was studied by Messinger and Hawkins.[52] A high-protein diet was found to be the most effective prophylactic measure; a high-carbohydrate diet was also beneficial though not so uniformly protective. A high-fat diet was found to be deleterious, and some of the animals on this regime developed a progressive liver injury, with intoxication which proved fatal.

416 Marlboro Street

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CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor*

CASE 27031*

PRESENTATION OF CASE

A baby girl entered the hospital at the age of eleven hours because of jaundice noted one hour after birth.

The family history revealed that the first child died at one month of age of "indigestion"; the second child was living and well; the third child, a boy, died on the first day of life of "yellow jaundice." There was no history in the parents' families suggestive of blood dyscrasia. The mother was well during pregnancy except for edema during the last three days. The child was born at home, by a normal delivery, with a birth weight of 5 pounds, 8 ounces. There was no difficulty in resuscitation, and no jaundice was noted at birth. The vernix was white, and the placenta apparently normal. A large amount of yellowish amniotic fluid was said to have been present. After one hour, the baby was found to be cold and yellow, and the attending physician advised hospitalization, with a diagnosis of "bile-duct obstruction."

Physical examination revealed a well-developed and well-nourished female infant who was extremely hypotonic, brownish yellow and cyanotic, and who appeared moribund. The skin was dry, the extremities cold, and the respirations very shallow. The vernix behind the ears and between the labia was white. The fontanel was not full or bulging. The scleras and conjunctivas were yellowish brown, but no petechiae were found; nor were petechiae present on the skin or mucous membranes. Examination of the lungs was negative. Examination of the heart showed a diffuse apical impulse, which was felt maximally to the left of the mammary line. The heart was enlarged to percussion, but the sounds were of good quality, with a rapid rate and regular rhythm. A systolic murmur was present, heard best at the apex and terminated by a sharp second sound. The abdomen was moderately enlarged, with hypotonic musculature. Both liver and spleen were greatly enlarged, with the lower margins palpable at the iliac crest laterally; the spleen was approximately 5 cm. wide and of rather firm consistence. The extremities were hypotonic almost to the point of flaccidity, but there was no edema.

The temperature was normal, the pulse 142, and the respirations 16.

Examination of the urine showed it to be brown with a ++ test for albumin and a++ test for bile. Microscopically there were occasional white cells and many epithelial cells. Examination of the blood showed a red-cell count of 2,300,000 with a hemoglobin of 68 per cent, and a white-cell count of 320,000 nucleated cells, of which approximately 303,000 were of the erythrogenic series. A blood film showed marked macrocytosis, hypochromia and polychromatophilia, and large numbers of all types of the red-cell series from extremely primitive bone-marrow cells down to erythrocytes. The clotting time of the blood was 2 minutes, and the bleeding time longer than 15 minutes.

Fluoroscopy revealed marked cardiac enlargement, with feeble heart action.

The patient received a transfusion of 60 cc. of citrated whole blood, and her color improved. Approximately eight hours after admission, a second transfusion of 30 cc. of whole blood and 30 cc. of 10 per cent glucose were given. The patient was maintained in an oxygen tent throughout. The following morning her condition remained poor; the skin was yellow, and the respiratory rate 16 to 18 per minute. She refused to suck and responded poorly to stimulants. The red-cell count was 3,400,000 with a hemoglobin of 75 per cent, and the white-cell count 280,000 nucleated cells, of which 266,000 were of the erythroblastic series. Digifolin, 1.5 gr., was given intramuscularly without significant effect, the apical beat falling from 142 to 136. The child could not be roused by stimulation, the temperature began to fall, edema of the skin and subcutaneous tissues was noted and the lungs became increasingly congested with many moist rales. A lumbar puncture yielded 3 cc. of xanthochromic fluid, which contained 12 red cells and 3 nucleated cells per cubic millimeter; the Pandy reaction was faintly positive, the serum van den Bergh indirect, the sugar content normal, and the total protein 110 mg. per 100 cc., with no growth on culture. The respirations and heart rate gradually slowed, and Coramine was given with no effect. For the last half hour of life the heart beat very slowly and irregularly and the respirations were gasping, occurring in series of two or three in Cheyne-Stokes fashion. The child died twenty hours after admission. Terminally the carbon dioxide combining power of the blood was 47.6 vol. per cent, the nonprotein nitrogen 66 mg.

*This case is presented through the courtesy of the Children's Hospital, Boston.

per 100 cc., the serum protein 4.8 gm., and the serum sugar 95 mg.

Differential Diagnosis

Dr. Leo B. Burgin: We have a newborn infant who entered the hospital in a moribund condition with a history of jaundice starting immediately after birth, with enlarged heart, liver and spleen, and a blood picture showing anemia and unusual erythroblastic activity. This case presents a new experience in these exercises, a family history that is relevant. There are a number of disorders and syndromes in the neonatal period that might account for some of the findings.

Infection with sepsis, whether acquired or antenatal, can give such a picture in the newborn. Signs of infection precede as a rule the signs of a disturbed hematopoietic system. Since there is no evidence of fever, vomiting or diarrhea, and no evidence of an acquired disease process, we can dismiss this cause.

Congenital malformation of the bile duct must be considered. It would give rise to the severe degree of jaundice that was observed in this case. However, the jaundice at birth is usually slight, but with the passage of time becomes severer. We should not expect to find this degree of erythroblastic activity during the neonatal period. We might expect 1000 or 2000 nucleated red cells per cubic millimeter, but not 200,000 or 300,000. In addition, congenital malformation of the bile ducts would hardly explain the presence of an enlarged heart.

From the laboratory data we have no evidence of blood dyscrasia — leukemia, aplastic anemia or familial hemolytic jaundice. The family history of jaundice is suggestive, but although hemolytic jaundice is described in the neonatal period, it is not common, and it would be unusual to find two neonatal cases in one family. In addition, there is no marked erythroblastic activity with hemolytic jaundice.

We might suppose a combination of two things, although we should like to explain everything by one diagnosis. The infant might have had congenital malformation of the heart, with icterus neonatorum. Jaundice in the newborn usually occurs after two or three days, is usually not so intense, and is not associated with marked enlargement of the liver and spleen; moreover, it is not associated with such large numbers of young red cells in the peripheral blood.

I think there are two conditions that could explain all the findings — congenital syphilis and erythroblastosis fetalis. In some cases syphilis can give rise to the symptoms noted here: enlarged liver and spleen, large numbers of young red cells in the peripheral blood and enlargement of the heart. In this case, the presence of a white vernix caseosa and normal placenta is somewhat in favor of such a diagnosis. The family history is suggestive but not typical of what one expects in a family with syphilis. I have not forgotten that five or six years ago I admitted a child with a diagnosis of erythroblastosis of the newborn in whom Dr. Mallory demonstrated treponemas in the liver and other organs. The clinical picture seemed typical of erythroblastosis fetalis. However, in congenital syphilis, I do not believe that the erythroblastic picture starts so early as this — on the eighth or ninth day perhaps, but hardly at the beginning.

My diagnosis is erythroblastosis fetalis. The blood picture is typical — anemia, a color index greater than one, macrocytes in the peripheral blood, a large number of nucleated red cells and a prolonged bleeding time. The family history is distinctly in favor of such a diagnosis, as is the severe degree of icterus. The enlarged heart is a common finding in erythroblastosis fetalis. The absence of a golden vernix and enlarged placenta is a slightly discordant note, but we know that erythroblastosis fetalis can occur in a number of forms.

When edema is a prominent symptom we have "universal edema of the newborn"; when icterus is the prominent feature we have "icterus gravis neonatorum"; when anemia is marked, "congenital anemia of the newborn." All degrees of the disorder may occur, so that we may expect that some cases will not have a golden vernix caseosa. The amniotic fluid is described as "yellow." I shall keep my diagnosis of erythroblastosis fetalis.

As to the cause of death, I think it was cerebral in origin. The patient had Cheyne–Stokes respiration, the heart continued to beat for a half hour, and the respirations were rather diminished. Whether the cerebral signs were due to hemorrhage or to the presence of icterus, it is difficult to say. A spinal tap showed xanthochromic fluid, which suggests hemorrhage. On the other hand, the color might have been due to the presence of large quantities of bile in the spinal fluid. There were not a great many cells. If hemorrhage occurred in the first twenty hours, I think one ought to expect the presence of many more red cells than are reported in this case. The presence of an indirect serum van den Bergh suggests hemorrhage. There was no growth on culture, and no evidence of infection in the central nervous system. We know that, in erythroblastosis fetalis, icterus can involve the nuclei of the brain and give rise to cerebral symptoms. That, rather than

actual hemorrhage, probably was the cause of death; although hemorrhage can occur in erythroblastosis fetalis, it is usually petechial in type. We have here a prolonged bleeding time, and I see no reason why there should not have been hemorrhage into the brain.

The occurrence of edema terminally might have been due to failure of the heart. On the other hand, it might have been a part of the picture of erythroblastosis fetalis, with the anemia and poor oxygen-carrying power of the nucleated red cells resulting in damage to the capillaries, in loss of fluid into the tissues and in consequent edema. The blood chemical findings were probably due to the fact that the child was dying, but here again we might explain the increased nonprotein nitrogen as due to impairment of the kidney function because of large areas of extramedullary hematopoiesis that occur in this disease. The liver, kidney and other organs show large areas of blood formation, and these may interfere with normal function. My diagnosis is erythroblastosis fetalis.

DR. ELI ROMBERG: Do you think there is a possibility of congenital heart disease superimposed on this picture, such as an open foramen ovale?

DR. BURGIN: That is possible. Murmurs in newborn infants are not reliable. Systolic murmurs have been described in a great number of cases with this condition, and I should like to explain the whole thing on one diagnosis.

CLINICAL DIAGNOSIS

Erythroblastosis fetalis.

DR. BURGIN'S DIAGNOSES

Erythroblastosis fetalis.
Kernicterus.

ANATOMICAL DIAGNOSES

Erythroblastosis fetalis.
Kernicterus.
Edema and congestion, generalized.

PATHOLOGICAL DISCUSSION

DR. SIDNEY FARBER*: Dr. Burgin has described our findings accurately. The patient did have erythroblastosis fetalis. There was also kernicterus or jaundice of the nuclear masses of the brain. The liver was enlarged two and a half times, the spleen eight times. Moderate enlargement of the liver and more marked enlargement of the spleen are characteristic of erythroblastosis fetalis. In congenital syphilis the liver and spleen are much firmer and much more distorted in architecture than they were in this case. The enlargement of the liver and of the spleen in erythroblastosis may be explained in great part by the presence of large numbers of immature cells of both the red-cell and the white-cell series. Similar collections of cells were found in this case in the interstitial tissues of the kidneys, pancreas, lungs, heart and many other organs and structures in the body—a finding characteristic of erythroblastosis. In this disease hematopoietic activity is present to a degree greater than that observed in the normal newborn infant, and in many more locations in the body.

Yellow pigmentation, an indication of kernicterus, was present in the basal ganglions and in a number of other cerebral nuclei all the way down the cord. The pigmentation may vary greatly in intensity. Its exact nature is not clearly proved; it is possible that we are dealing with a number of different pigments in this condition. We were under the impression, until a year ago, that kernicterus was characteristic of erythroblastosis fetalis and that impression may be gained from the literature. Dr. Tague Chisholm and I are studying a group of 26 patients with kernicterus. Only 3 of these patients gave evidence of erythroblastosis. Many of them were premature infants. The correct interpretation of the nature of kernicterus must await further study. It is safe to say that the icterus part of the name has been grossly overemphasized and may not be important.

DR. J. H. MEANS: Is this a form of Cooley's anemia, or is it a quite distinct disease?

DR. FARBER: Erythroblastosis fetalis is quite a distinct disease. Cooley's anemia occurs almost universally in patients of Mediterranean heredity. It may be observed in early life, but it is rare to find it in marked form in the neonatal period. Erythroblastosis fetalis has been found in patients of almost every race and nationality.

DR. TRACY B. MALLORY: There is very great confusion between the two diseases because of the somewhat similar names that have been given to them. A long, very detailed paper by Macklin† about the hereditary aspects of these diseases unfortunately confuses the two. Cooley's or erythroblastic anemia is quite obviously a recessive type of disease, whereas erythroblastosis fetalis occurs, I believe, as a dominant mutation.

DR. GEORGE W. HOLMES: Is there any treatment for it?

DR. HAROLD L. HIGGINS: Transfusion is the treatment of choice, and often causes a dramatic cure.

DR. MALLORY: In a significant number of the

*Assistant professor of pathology, Harvard Medical School; pathologist, Children's Hospital, Boston.

†Macklin, M. T. Erythroblastosis foetalis. *Am. J. Dis. Child.* 53:1245-1267, 1937.

mild cases the patients are being kept alive now, and they raise a very definite problem for future generations. If Macklin is correct, once the mutation has occurred, it is inherited as a dominant characteristic, so that we must expect in the future many more cases of this disease.

DR. JOHN D. STEWART: What neurological symptoms do you expect from kernicterus?

DR. FARBER: Most of the symptoms are dependent on changes in the basal ganglions.

DR. STEWART: It may be the cause of death, in other words?

DR. FARBER: Patients with kernicterus often suffer from some other unrelated disease, such as pneumonia.

DR. STEWART: What cerebrospinal-fluid changes are characteristic?

DR. FARBER: I should say that the spinal fluid shows nothing remarkable.

CASE 27032

PRESENTATION OF CASE

First Admission. An eighteen-year-old girl entered the hospital with the complaint of abdominal pain and diarrhea.

Eight months before entry she began to have painless diarrhea one to three times daily. The onset of the diarrhea was insidious and unrelated to any change in habits or diet. Previously she had had one bowel movement a day. Her stools were watery or mushy, rarely formed. They contained no blood or pus to her knowledge, and at that time she had no other symptoms. Her physician put her on absolute bed rest for one week and restricted her activities for three more weeks, but this treatment had no effect on the symptoms. The diarrhea continued practically unchanged until one month before entry, when for the first time the patient began to have attacks of cramplike low abdominal pain. The pain usually came on during or immediately after supper, was moderately severe, and lasted two to five minutes. It was localized just below and to the right of the umbilicus, and was sometimes accompanied by a dull ache in the lumbar region posteriorly. The pain did not interfere with her activity and never woke her from sleep. Previous to entry the patient lost about 20 pounds in weight. She never had any nausea, vomiting, hematemesis, melena, jaundice, fever or genitourinary or cardiorespiratory symptoms. The diarrhea continued unchanged up to the time of entry. The past history and family history were noncontributory. For three months her physician had been giving her iron, and for one month liver capsules.

Physical examination revealed a well-developed and well-nourished girl lying quietly in bed in no discomfort. The examination was entirely negative except for an area of deep tenderness without spasm in the right lower quadrant of the abdomen. There seemed to be some increased resistance in that area, but no masses could be made out. Pelvic and rectal examinations were negative. The blood pressure was 104 systolic, 86 diastolic.

The temperature was 98°F., the pulse 100, and the respirations 20.

Examination of the urine was negative. The blood showed a red-cell count of 3,940,000 with 65 per cent hemoglobin, and a white-cell count of 5000 with 70 per cent polymorphonuclears, 26 per cent lymphocytes, 2 per cent eosinophils and 2 per cent basophils. The stools were repeatedly guaiac negative. A Frei test and a 1:1000 tuberculin test were negative. The stomach contents contained 91 units of free acid and 32 units of combined acid after the administration of histamine and alcohol.

X-ray examination of the chest was negative. A barium enema showed no evidence of disease in the colon or cecum. A gastrointestinal x-ray series showed marked narrowing and irregularity of the terminal ileum. The mucosal folds were irregular and partially destroyed, and segments of the bowel showed multiple small irregular filling defects. The involved portion of the bowel was rigid and distinctly palpable. There was no obstruction to the flow of barium, the motor meal having reached the hepatic flexure in six hours. There was some gas in the upper ileum and jejunum, but no evidence of dilatation.

During her stay in the hospital the patient never had more than one stool a day, although they were all mushy. She also had no attacks of pain. Proctoscopy done on the seventh day was negative. She was discharged on the eighteenth day.

Second Admission (fourteen months later). The patient was discharged on a regime of rest with limited activities, a high-vitamin, high-calorie, low-residue diet, and yeast, cod liver oil and ferrous sulfate medication. For several weeks after discharge she had two or three loose bowel movements a day without other symptoms, but after that time she began to have one normal bowel movement daily and was essentially symptom free until three and a half months before re-entry. Occasionally she had a loose bowel movement, but not with any regularity. A gastrointestinal x-ray series six months after discharge showed little or no change from the previous examination. During the six months the patient gained 13 pounds in weight. About three and a half months before

the second admission, however, she again began to lose weight and to have some general malaise. She also had attacks of dull aching pain, which came on just before eating, occurred two or three times a day, were not increased by eating, were localized to the right of the umbilicus, and lasted about fifteen minutes. On occasions the pain would awaken her at night. She had some anorexia and nausea, and often vomited small amounts after meals. Her physician thought that the iron medication was causing the symptoms; following its removal the nausea and vomiting ceased, but the pain continued. The patient also continued to have occasional loose bowel movements. She thought that her general health had been gradually failing. She became more easily fatigued, lacked energy, and lost a total of 20 pounds in weight during the three months before re-entry. She always followed her diet, but for the three months prior to the second admission took no iron, and for the month before re-entry no yeast or cod-liver oil.

Physical examination revealed a well-developed, well-nourished girl who was somewhat pale but not acutely ill. In the right lower quadrant a tubular mass, which was slightly tender on deep pressure, could be palpated. The examination was otherwise negative. The blood pressure was 112 systolic, 60 diastolic.

The temperature was 99°F., the pulse 105, and the respirations 20.

Examination of the urine was negative. The blood showed a red-cell count of 4,000,000 with 70 per cent hemoglobin, and a white-cell count of 8500 with 78 per cent polymorphonuclears. The stools were soft and repeatedly guaiac negative. The corrected sedimentation rate was 0.8 mm. per minute.

A gastrointestinal x-ray series showed a grossly constricted, irregular loop of lower ileum, in which the mucosal pattern was completely destroyed. There was also dilatation of the upper ileum.

An operation was performed on the fifteenth day.

Differential Diagnosis

Dr. John D. Stewart: We are given a diagnostic problem the central feature of which is a protracted, mild, bloodless diarrhea, during the course of which abdominal pain and impairment of the general health and nutrition appeared. It is further to be noted that fever was absent, and that a tender tubular mass was later apparent in the right lower quadrant, where the abdominal pain had been most noticeable. On the basis of the symptomatology one thinks first of affections of the colon, which produce chronic diarrhea. Chronic ulcerative colitis, a disease of unknown etiology subject to exacerbations and remissions, is a not uncommon cause of diarrhea and gradual deterioration in health. There may be crampy, unlocalized abdominal pain as the diarrhea becomes severe, and gross or occult bleeding is the rule. This diagnosis has been excluded in the present case, however, by the absence of blood in the stools, the negative barium-enema study, and the normal findings on proctoscopic examination. Chronic ulcerative colitis results in destruction of the colonic mucosa, with narrowing of the lumen, rigidity of the wall and loss of haustration. Since the ulcerations commonly appear first in the distal colon, the proctoscopic examination often gives conclusive diagnostic evidence. Tuberculosis of the colon may produce chronic diarrhea of variable severity, as may amebic ulceration of the colon, and into the differential diagnosis also comes lymphopathia venereum, which occasionally results in ulceration and stricture of the rectum or colon. However, disease of the colon has been conclusively excluded in this case by the negative barium enema and proctoscopic examination, and the negative tuberculin test and Frei test are in conformity with this conclusion. Polyposis and carcinoma of the colon may also be regarded as eliminated from the diagnostic possibilities, and the course of the disease seems to be too long and the diarrhea too mild for bacillary dysentery.

It does not come as a surprise to be told that the gastrointestinal x-ray series showed narrowing and irregularity of the terminal ileum, with partial destruction and ulceration of the mucosal folds. Ulcerations of the terminal ileum may produce cramplike central abdominal pain, nausea and vomiting and mild diarrhea. The dull ache in the lumbar region could be due to inflammatory infiltration of the mesentery of the small intestine or to involvement of the posterior parietes.

The question arises whether the ulcerations in the terminal ileum are due to neoplasm, such as lymphoblastoma, cancer or carcinoid, to tuberculosis or to so-called "regional enteritis," the cause of which is as yet unknown. The differentiation of ileal ulceration due to neoplasm from that due to chronic inflammation rests chiefly on the x-ray findings, although the protracted course of the process and the paucity of symptoms of obstruction of the lumen tend to exclude neoplasm. The three gastrointestinal x-ray studies made over a period of fourteen months showed an advancing ulcerating process in a loop of terminal ileum, with destruction of mucosa, narrowing of the lumen and loss of motility. Later, dilatation of the small intestine proximally was evident. In-

spection of the films made at the third x-ray study of the small intestine shows the so-called "string sign," which consists of a thin stream of unevacuated, opaque medium in a narrowed rigid-walled lumen. I believe that these findings could all be due to tuberculosis, but regional enteritis is the likelier diagnosis. The negative tuberculin test, though of course not conclusive, is evidence against tuberculous enteritis.

The patient was given a careful trial of nonsurgical treatment, including rest and high-carbohydrate, high-vitamin low-residue diet. A period of temporary improvement followed, but unfortunately this was not maintained, which not infrequently occurs in the management of this disease. Surgical treatment then became necessary, and probably consisted either of resection of the diseased ileum and mesentery or of a sidetracking ileocolostomy.

The most probable diagnosis seems to be regional ileitis, with secondary malnutrition and partial obstruction of the small intestine.

Clinical Diagnosis

Regional ileitis.

Dr. Stewart's Diagnosis

Regional ileitis, with secondary malnutrition and partial obstruction of the small intestine.

Anatomical Diagnosis

Idiopathic regional ileitis.

Pathological Discussion

Dr. Tracy B. Mallory: As Dr. Stewart has pointed out, the diagnosis, once all the data were in, could hardly have been anything but idiopathic regional ileitis. The important point in the diagnostic work-up of such a patient is to be sure that the roentgenologist's attention is called to the possibility of a small-bowel lesion so that he may make suitable adaptations in technic.

The patient was operated on by Dr. Leland S. McKittrick not simply because she had regional ileitis but because he believed it had resulted in intestinal obstruction of sufficient degree to demand surgical intervention. At operation he found that the ileum, beginning at a point 5 cm. from the ileocecal valve and extending upward for a distance of 20 cm., was thickened and contracted. Its serosa seemed velvety, and the mesentery was considerably thickened. Numerous enlarged lymph nodes, ranging up to 1.5 cm. in diameter, were present in the corresponding segment of the mesentery. For technical reasons the cecum, as well as the terminal 40 cm. of ileum with the corresponding mesenteries, was resected, and a lateral anastomosis to the ascending colon was performed.

When the specimen was examined in the laboratory the process was found to be even more extensive than had been thought at operation. It extended from the ileocecal valve, which was markedly stenotic, upward for a distance of 40 cm., leaving only 5 cm. of uninvolved bowel at the upper margin of the resection. There were also several small ulcers in the cecum. In the ileum the ulcers were characteristically located over the mesenteric attachment, though the mucosa was inflamed throughout. All layers of the wall were thickened by inflammatory infiltration and scar tissue. A very characteristic feature, also exemplified here, is the thickening and induration of the fat pad at the point of mesenteric attachment. The lymph nodes in the mesentery are usually enlarged, and in this case they were big, wet and soft. Microscopically these cases usually show a nonspecific inflammatory reaction in the mucosa, with polymorphonuclear leukocytes, lymphocytes and large numbers of plasma cells. Usually, but not always, focal collections of epithelioid cells and giant cells in tuberculoid arrangement are present. Caseation is never found, and no tubercle bacilli can ever be demonstrated. The reaction is very similar to that seen in sarcoid. In this patient the lymph nodes were full of such areas, and the resemblance to sarcoid was particularly striking. So far as I know, however, no case of regional ileitis has ever been reported showing any of the well-recognized forms of sarcoid, such as skin lesions, dactylitis, hilar-node involvement, miliary lesions in the lung or uveoparotid fever.

The subsequent course of this patient has also been very typical. Following operation she had no further attacks of pain. The tendency to diarrhea continued, however. At a routine check-up six months later, x-ray examination showed recurrence of the disease in the terminal 15 cm. of the ileum adjacent to the anastomosis. A year later the area of involvement had doubled in length. Subsequent treatment has been medical, with a low-residue, high-vitamin diet, iron and liver, and the patient has been kept fairly comfortable, except for complicating hemorrhoids, though her course has been slowly downhill. No one has shown any enthusiasm for further surgical intervention.

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MEDICAL SERVICE CORPORATIONS

Elsewhere in this issue of the *Journal* is a copy of the petition and proposed enabling act recently submitted by the Massachusetts Medical Society to the General Court of the Commonwealth of Massachusetts. The Society seeks legislation to permit the formation of a corporation or corporations, nonprofit in character, that will offer a means of meeting the costs of medical care.

In drafting this bill the special committee followed the outline submitted to and approved by the Council in October, 1940, incorporating various suggestions made by the Council at that time. The final form was approved by the Committee on Public Relations.

The guiding principles were as follows: that subscription be on a voluntary basis; that participation be open to all physicians licensed to practice in Massachusetts; that the Massachusetts Medical Society exercise indirect supervisory control of the corporation or corporations through its approval of the appointment of the majority of the directors; and that the corporation or corporations be under the control of the commissioner of insurance.

That any such plan should be on a voluntary, rather than compulsory, basis is agreed by all.

Whether all licensed physicians should be allowed to participate in the dispensing of medical care has been controversial. In fact a supplementary bill has been filed that is quite similar to that of the Society, the chief exception being a provision for the possible limitation of participating physicians to certain minimum requirements over and above licensure. Although it is acknowledged that every effort should be made to improve the standards of medical care, to try to accomplish this by legislation seems both improper and unwise. The special committee is strongly of the opinion that any state-wide, medical-costs insurance plan sponsored by the Society should include the right of all licensed physicians to participate.

Any such corporation concerned with medical care should obviously be under the direct or indirect control of those who are supplying medical service, namely, the physicians. Hence the provision that a majority of the directors be approved by a well-established and sizable medical society is logical.

It seems wise that such a plan be under the supervisory control of the commissioner of insurance, especially in view of the experience of other states, notably New Jersey. By so doing the corporation better protects itself and its subscribers.

The bill specifically states that it in no way interferes with the activity of any insurance company, any fraternal benefit society or any corporation organized under Chapter 180 of the General Laws. This section clearly refutes any charge that the Society is endeavoring to create a monopoly of such plans.

The bill is submitted as evidence of a sincere effort on the part of the Massachusetts Medical Society to meet the present-day problems of low-income groups in regard to paying for medical care. All members of the Society should become thoroughly familiar with the general principles of the bill, and should explain its purpose to laymen at every opportunity.

GRADUATE EDUCATION FOR INTERNS

In recent years the internship has been discussed from several points of view, but although the realization has grown that it presents an exceptional educational opportunity, there has been far too little transmission of this thought into action in accordance with a carefully planned procedure. Only recently has the educational value of the internship been estimated so highly that it is regarded as requiring considerable planning as to content and schedule. There is as yet no general agreement about what the intern should accomplish or about the functions that he may reasonably be expected to perform. In some medical schools, a year's internship is required before the degree is conferred, and in some states one year of internship in an approved hospital is a condition for admission to examination as a qualified practitioner. In many states and in most medical schools, however, the internship receives no formal recognition, although it may well include one of the critical periods in the life of the physician. At present nearly every physician who is free to choose spends at least one year in a hospital before he begins the independent practice of medicine.

In the process of transition from the old type of internship with almost no supervision to the ultramodern internship with almost a complete laying out of time for practical work and study, it is extremely interesting to consider the various ways in which this relatively new problem is being approached. It is for this reason, as well as for its intrinsic merit, that the paper by Dr. Nathan Smith, which appears in this issue of the *Journal*, deserves careful review by the staff members of all hospitals that have interns.

Dr. Smith's plan is to provide an internship that will be a good useful introduction to the general practice in which most physicians will engage. But he considers it also the best foundation for specialism. In this respect his plan differs radically from the procedure adopted by a number of other hospitals, of which the Massachusetts General Hospital is one. On June 1, 1940, a brochure entitled "Graduate Training in Surgery" appeared in which the system recently adopted for surgical interns and residents in that institution is described. In the period devoted to the graduate training in surgery, — about five years and eight months, — opportunity will be given for work in "any laboratory in this country or abroad" under certain conditions, the subject of the study not being stated, and for a "short clinical internship" in "obstetrics or any other clinical field." Thus little time is devoted to fields outside surgery. Another interesting feature of this procedure is that it seems not to pyramid; that is, if the candidate survives the internship, he is in direct line for the residency. This system has problems of its own, but it avoids the rejection of worthy but incompletely trained candidates before the residency is reached simply because there are too many of them for the available positions.

The plan described by Dr. Smith presents another noteworthy feature. The intern is also taught ordinary nursing procedures, so that he may be able to write intelligent nursing prescriptions. This is a significant and much needed reminder that under contemporary conditions the care of the sick requires the co-operation of the medical and the nursing professions.

Each hospital that trains interns and thereby gives them graduate medical education should work out for itself the system best suited to its circumstances, but it should be informed of what others are doing and have accomplished; the experiences of the Morrisania City and Massachusetts General hospitals may well be studied with interest and profit by all.

MEDICAL EPONYM

Friedreich's Ataxia

"Ueber degenerative Atrophie der spinalen Hinterstränge [Degenerative Atrophy of the Posterior Spinal Columns]" was described by Professor Nikolaus Friedreich (1825–1882), of Heidelberg, in *Virchow's Archiv für pathologische Anatomie und Physiologie und für klinische Medicin* (**26**:391–419, 433–459, 1863). He concludes a series of detailed case reports with observations on this condition. A portion of the translation follows:

> There is a chronic inflammatory degeneration of the spinal cord that leads to atrophy, and that seems to develop especially in puberty as the result of some hereditary tendency. This is essentially confined to the posterior column, begins in the lumbar portion of the cord, progressing both upward and downward and limited by the elongation of the cord only after involving the origin and roots of the hypoglossal nerves. The affection is characterized clinically by a very gradually developing disturbance of association and harmony of movements, which progresses upward from the lower half of the body, always finally involving the organs of speech. There is complete integrity of the organs of sensation and cerebral function.

R. W. B.

MASSACHUSETTS MEDICAL SOCIETY

STATED MEETING OF THE COUNCIL

A STATED meeting of the Council will be held in John Ware Hall, Boston Medical Library, 8 Fenway, on Wednesday, February 5, 1941, at 10:30 a.m.

Business:

1. Call to order at 10:30 a.m.
2. Presentation of record of meeting held October 2, 1940, as published in the *New England Journal of Medicine,* for October 31, 1940.
3. Report of Auditing Committee and of Treasurer.
4. Reports of standing and special committees.
5. Appointment of Delegates.
   - *(a)* To the House of Delegates, American Medical Association, for two years from June 1, 1941.
   - *(b)* To the annual meetings of the five New England state medical societies in 1941.
   - *(c)* To the Annual Congress of the American Medical Association on Medical Education and Licensure at the Palmer House, Chicago, February 17 and 18, 1941.
6. Incidental business.

ROBERT N. NYE, *Secretary pro tempore.*

Councilors are asked to sign one of the two attendance books before the meeting. The Cotting Luncheon will be served immediately after the meeting.

COMMITTEE TO STUDY MEDICAL-COSTS INSURANCE PLANS

A petition for the passage of legislation to permit the formation of a corporation, nonprofit in character, that seeks to pay the medical-care costs of patients was submitted by the Massachusetts Medical Society to the General Court on January 11, 1941. A copy of the proposed act, approved by the Committee on Public Relations follows.

THOMAS H. LANMAN, *Chairman.*

* * *

AN ACT PROVIDING FOR THE FORMATION OF MEDICAL SERVICE CORPORATIONS

WHEREAS, The deferred operation of this act would tend to defeat its purpose, therefore it is hereby declared to be an emergency law, necessary for the immediate preservation of the public convenience, be it

ENACTED by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

The General Laws are hereby amended by inserting after chapter one hundred and seventy-six A, as appearing in the Tercentenary Edition, as amended, the following new chapter:

CHAPTER 176B

MEDICAL SERVICE CORPORATIONS

Section 1. In this chapter the following words shall have the following meanings:

"Commissioner," the commissioner of insurance.

"Covered Dependent," a dependent for whose medical care provision is made in a subscription certificate issued by a medical service corporation to a subscriber.

"Dependent," the spouse, child or foster child of a subscriber, or an adult relative dependent upon the subscriber for his or her support.

"Medical Service," the general and special medical services ordinarily provided by registered physicians in accordance with accepted practices in the community where the services are rendered.

"Medical Service Corporation," a corporation organized under the provisions of this chapter for the purpose of establishing and operating a non-profit medical service plan.

"Non-profit Medical Service Plan," a plan operated by a medical service corporation under the provisions of this chapter, whereby the cost of medical service furnished to subscribers and covered dependents is paid by the corporation to participating physicians and to such other physicians as are provided for herein.

"Participating Physician," a registered physician who agrees in writing with a medical service corporation to perform general or special medical service for subscribers and covered dependents at such rates of compensation as shall be determined by its board of directors and to abide by the by-laws, rules and regulations of such corporation.

"Registered Physician," a physician registered to practice medicine in the commonwealth of Massachusetts as provided in section two of chapter one hundred and twelve.

"Subscriber," a person who has subscribed to a non-profit medical service plan and to whom a subscription

certificate has been issued in accordance with the provisions of section six.

Section 2. For the purpose of establishing, maintaining and operating a non-profit medical service plan, any seven or more persons may form a medical service corporation. Such a corporation shall be formed in the manner prescribed in and subject to section nine of chapter one hundred and fifty-five and sections six and eight to twelve inclusive of chapter one hundred and fifty-six, except as follows:

The agreement of association of a corporation having no capital stock may omit the statement of the amount of the capital stock and the par value and number of its shares. The fee to be paid to the state secretary upon the filing of the certificate of condition shall be ten dollars.

Every certificate of organization and every amendment to the articles of organization or by-laws of such a corporation shall have endorsed thereon or attached thereto the consent of the commissioner.

Section 3. The by-laws of a medical service corporation may contain any lawful provisions approved by the commissioner and shall provide that a majority of the directors shall at all times be persons approved in writing by a medical society incorporated in Massachusetts not less than ten years and having not less than two thousand registered physicians as members. The by-laws of such a corporation may define the qualifications of those persons eligible to become subscribers as provided in section five. Any such corporation may adopt such rules and regulations as may be consistent with the provisions of this chapter.

Section 4. Any medical service corporation may enter into contracts with its subscribers and with participating physicians for the rendering of medical service to the subscribers. A contract with a subscriber may provide for the medical care of any dependents of the subscriber named therein. The form of subscription certificate and of agreement with participating physicians, the rates charged by such corporation to the subscribers and the rates at which participating physicians are compensated for their services to the subscribers or to covered dependents, and the acquisition costs in connection with the solicitation of subscribers shall at all times be subject to the written approval of the commissioner.

Section 5. Any person residing in the commonwealth shall have the right to become a subscriber of a medical service corporation if his qualifications meet those specified in the by-laws of such corporation, provided that such a corporation may, in its discretion, refuse to issue a subscription certificate to, or upon due notice cancel the subscription certificate of, any person if such person has made any fraudulent claim or representation to the corporation or to a participating physician, or has been guilty of uncooperative or unethical dealings with the corporation, or has failed to pay dues and assessments seasonably and promptly or for any other cause which may be approved by the commissioner.

Section 6. A subscription certificate shall be issued to each subscriber of a medical service corporation. No subscription certificate shall be issued unless the commissioner shall have approved in writing the form of certificate nor unless it contains in substance the following provisions:

(a) A statement of the medical service to be paid for by the corporation, and if any medical service is excepted, a statement of such exception.

(b) A statement of the duration of the agreement and of the terms and conditions upon which it may be extended, renewed, revised, canceled or otherwise terminated.

(c) A statement of the period of grace which will be allowed for making any payment due from the subscriber under the contract, which in any event shall not be less than thirty days.

A subscription certificate may incorporate by reference the by-laws, rules and regulations of a medical service corporation provided a copy of the said by-laws, rules and regulations is available upon request to any subscriber.

Section 7. Every registered physician shall have the right on complying with such regulations as the corporation may make to enter into a written agreement with a medical service corporation doing business in the city or town where the said physician resides or has his usual place of business to perform general or special medical service. This chapter shall not change the normal relations between physician and patient. No restriction shall be placed by any such corporation upon its participating physicians as to methods of diagnosis or of treatment. No officer, agent or employee of a medical service corporation shall influence or attempt to influence a subscriber or a covered dependent in his choice of a participating physician. A subscriber or a covered dependent, subject to the by-laws, rules and regulations of a medical service corporation and the terms and provisions of his subscription certificate, shall be entitled to the benefits of this chapter upon receiving medical service from any participating physician or, in the discretion of the corporation, upon receiving medical service from any non-participating physician in an emergency or when outside the commonwealth. A corporation may terminate its agreement with any participating physician at any time (a) for failure to comply with the reasonable rules and regulations of such corporation, including without limitation such rules as may be adopted governing the keeping of accounts, records, and statistics, the making of reports and proof of services rendered, or (b) for presenting any fraudulent, unreasonable, or improper claim for payment, or compensation.

Section 8. Every medical service corporation shall annually, on or before the first day of March, file in the office of the commissioner a statement, verified by at least two of the principal officers of said corporation, showing its condition as of the thirty-first day of December next preceding. Such statement shall be in such form and shall contain such matters as the commissioner shall prescribe. A corporation neglecting to file its annual statement within the term herein specified shall forfeit one hundred dollars for each day during which such neglect continues, and upon notice by the commissioner to that effect, its authority to do business shall cease while such default continues.

Section 9. The commissioner, or any deputy examiner or any other person designated by the commissioner, shall, at least once in three years, and whenever the commissioner deems it prudent, visit any medical service corporation and examine into its affairs. The commissioner shall have free access to all of the books, records and papers of the corporation, and may summon and examine under oath its officers, agents, employees and other persons in relation to its affairs and condition. The commissioner shall require every such corporation to keep its books, records, accounts and vouchers in such manner that he or his authorized representatives may readily verify its annual statement and determine whether the corporation has complied with the law.

Section 10. The funds of a medical service corporation shall be invested only in such securities as are permitted by chapter one hundred and seventy-five for the investment of the capital of insurance companies, or it may deposit the whole or any portion of its funds in any savings bank or savings department of a trust company organized under the laws of the commonwealth or a national banking association. It shall have the right to acquire and own real estate to be occupied by itself in the transaction of its business. The commissioner may require any such corporation after the first full calendar year of doing business to accumulate and maintain a special contingent surplus, over and above its reserves and liabilities, in such amount as the commissioner may deem proper.

Section 11. Unless each such payment is first authorized by a vote of its board of directors, no medical service corporation shall pay any salary, compensation or emolument to any officer, trustee or director thereof, or any salary, compensation or emolument to any person amounting in any year to more than five thousand dollars. No such corporation shall make any agreement with any of its officers, trustees or employees whereby it agrees that for any services rendered or to be rendered to it, they shall receive any salary, compensation or emolument for a period of more than three years from the date of such agreement.

Section 12. Any dispute or controversy arising between a medical service corporation and any participating physician, or any subscriber, or any person whose subscription certificate has been canceled or to whom such corporation has refused to issue a certificate as provided in section six may within thirty days after such dispute or controversy arises be submitted by any person aggrieved to a board serving in the division of insurance and consisting of the commissioner or a person designated by him, the chairman of the board of registration in medicine or a person designated by him, and the attorney general or a person designated by him, for its decision with respect thereto. All decisions and orders of the board or of the commissioner made under any provision of this chapter may be revised as law and equity may require upon a petition in equity filed, within ten days after the promulgation of such decision or order in the superior court within and for the county of Suffolk by any party aggrieved by such decision or order.

Section 13. If the commissioner is satisfied, as to any medical service corporation, that (1) it has failed to comply with the provisions of its charter, or (2) it is being operated for profit, or (3) it is fraudulently conducted, or (4) its condition is such as to render its further transaction of business hazardous to the public or to its subscribers, or (5) its officers and agents have refused to submit to an examination under section nine, or (6) it has exceeded its powers, or (7) it has violated any provision of law, or (8) it has compromised, or is attempting to compromise, with its creditors on the ground that it is financially unable to pay its claims in full, or (9) it is insolvent, he may apply to the superior court within and for the county of Suffolk for an injunction restraining it from further proceeding with its business. The court may forthwith issue a temporary injunction restraining the transaction of any business, and it may, after a full hearing, make the injunction permanent, and appoint one or more receivers to take possession of the books, papers, moneys and other assets of the corporation, settle its affairs, and distribute its funds to those entitled thereto, subject to such rules and orders as the court may prescribe.

Section 14. Every medical service corporation is hereby declared to be a charitable corporation. No such corporation shall be liable for injuries resulting from negligence or malpractice on the part of any participating physician or of any of its employees. Every such corporation shall be exempt from all provisions of the insurance laws of the commonwealth, except as otherwise provided in this chapter. The property of every such corporation shall be exempt from all state and local taxes and such corporation shall not be subject to any tax or excise on or with respect to its corporate franchise or with respect to the doing of business.

Section 15. It shall be unlawful for any person, firm, corporation or association, except a medical service corporation, to establish, maintain or operate a non-profit medical service plan, provided, however, that this chapter shall not render unlawful or affect any operation or activity of any company organized or to be organized under the provisions of chapter one hundred and seventy-five, of any society or fraternal benefit society organized or to be organized under the provisions of chapter one hundred and seventy-six, of any non-profit hospital service corporation organized or to be organized under the provisions of chapter one hundred and seventy-six A, or of any corporation organized or to be organized under chapter one hundred and eighty, the existence, purposes, activities and operations of which were lawful or would have been lawful prior to the enactment of this chapter.

Section 16. The provisions of this chapter may be enforced by a bill in equity brought in the superior court within and for the county of Suffolk or in the county where any defendant resides or has his or its usual place of business to be brought by the commissioner, the attorney general, or any district attorney.

COMMITTEE TO CONSIDER NEW OFFICERS AND BY-LAWS

Following the Council meeting of October 2, 1940, a committee was appointed by the president of the Massachusetts Medical Society to study the desirability of establishing the offices of president-elect and full-time or executive secretary and to suggest the necessary changes in the by-laws required to create these positions. The committee believes that these two new positions are desirable and has consequently formulated the changes in the by-laws necessary for the creation of these offices.

In respect to the second part of its duties, that is, to study the propriety of altering the constitution and by-laws in such a way that they would conform to those of other state medical societies, the committee reports that any attempt in the nature of redistricting involves too great a change in policy for a committee of this sort, which is probably not sufficiently representative, to act upon.

The committee has seen no need of altering the nomenclature of the governing body, the Council, or its method of election. It does recommend the creation of an Executive Committee of the Council — a smaller body, selected in such a way

as fairly to represent, geographically and numerically, the fellows of the Massachusetts Medical Society.

There is also submitted a table to explain the units represented by the elected members of the Executive Committee. (The ease of geographic division is apparent if one refers to the map of the district societies in the *Directory*.)

The changes in the by-laws necessitated by the creation of the offices of president-elect and executive secretary and the creation of an Executive Committee of the Council follow.

JOHN HOMANS, *Chairman,*
JOHN FALLON,
PEIRCE H. LEAVITT,
FRANK R. OBER,
WALTER G. PHIPPEN, *ex-officio,*
AUGUSTUS THORNDIKE, JR.

* * *

CHAPTER III

DISTRICT SOCIETIES

Section 5. (Additional.)

The councilors of each district society shall meet as soon as possible after the annual meeting of the district society in 1941 and elect two or more of their number to serve as candidates for the Executive Committee of the Council in accordance with chapter IV, section 10; and thereafter in a similar manner they shall choose new candidates from time to time.

Section 7. (Additional.)

The secretary of each district society as soon as possible after the annual meeting of the district society in 1941 shall call together its councilors for the purpose of selecting the candidates for the Executive Committee of the Council and shall send the names of those chosen to the Secretary of the general Society. He shall see that new candidates are chosen in a similar manner to fill vacancies as they occur, in accordance with chapter IV, section 10.

CHAPTER IV

THE COUNCIL

Section 1. The Council shall consist of councilors chosen by the district societies, and the President, ex-presidents, President-Elect, Vice-President, vice-presidents *ex officiis*, Secretary and Treasurer of the general Society, secretaries of the district societies, and the chairman of each standing committee.

Section 3. The Council at its annual meeting, on nomination by the Nominating Committee and/or from the floor, shall elect by ballot officers of the Society as follows: President-Elect, who shall serve as President-Elect until the annual meeting of the Society next ensuing after his election and shall become President on his installation in the course of that meeting, serving thereafter as President until the next following annual meeting and the installation of his successor; a Vice-President, Secretary and Treasurer, all of whom shall assume the duties of office at the close of the annual meeting of the Society and shall hold office until their successors have been duly elected; except only that at the annual meeting of the Society in 1941 there shall be nominated and elected a President to serve for that year. Councilors only shall be eligible to the offices above named. Upon nomination by the Nominating Committee, it shall elect by ballot a fellow to deliver an oration at the annual meeting of the Society the following year.

Upon nomination by the Nominating Committee, it shall elect by ballot members of the Executive Committee representing, respectively, the various units of district societies in accordance with section 10 of this chapter.

Section 10. The Executive Committee shall consist of the President, President-Elect, Vice-President, Treasurer and Secretary *ex officiis*, the chairmen of the following standing committees, namely, Ethics and Discipline, Financial Planning and Budget, Membership, Publications and State and National Legislation, and those members elected by the Council.

The elected members, all of whom shall be councilors, shall be chosen, respectively, from geographical units of the Society so arranged that each member of the Executive Committee shall represent at least five hundred fellows of the Society as of January 1, 1941; except that if the number of fellows in any unit shall thereafter fall below five hundred, that unit shall still be entitled to its member, unless the Council orders otherwise.

These members shall be nominated and elected in the following manner:

(*a*) The councilors of each district society shall meet as soon as possible after its annual meeting in 1941 and in a similar manner at stated intervals thereafter, as specified below, to choose two of their number for presentation to the Nominating Committee; except that the councilors of any district society which alone represents one unit shall choose four nominees, and except that the councilors of any district society having more than five hundred fellows shall choose two additional nominees for each additional five hundred fellows or major fraction thereof.

(*b*) From the list of nominees representing each unit, the Nominating Committee shall choose, for election at the next annual meeting of the Council, at least twice the number of names eligible for election from that unit.

(*c*) From the list of councilors offered by the Nominating Committee, the Council at its annual meeting shall elect by ballot, to represent each unit of district societies, one or more members to serve on the Executive Committee, according to the following plan, which may be altered by the Council at its annual meeting from time to time:

From Berkshire, Franklin, Hampden and Hampshire, designated as the Western Unit, one member.

From Worcester and Worcester North, designated as the Worcester Unit, one member.

From Middlesex North, Middlesex South and Middlesex East, designated as the Middlesex Unit, two members.

From Essex North and Essex South, designated as the Essex Unit, one member.

From Suffolk, designated as the Suffolk Unit, one member.

From Norfolk and Norfolk South, designated as the Norfolk Unit, two members.

From Plymouth, Bristol North, Bristol South and Barnstable, designated as the Cape Unit, one member.

(*d*) The members of the Executive Committee shall serve for three years and shall not be eligible for reëlection

before the expiration of three years following the conclusion of their terms of office, except that in 1941 three members shall be selected by lot to serve one year, three members shall be selected by lot to serve two years and three members shall be selected by lot to serve three years. Thereafter three members shall be elected every year to succeed in office those whose terms are about to expire

Basis for Election of Members of Executive Committee of the Council.

Units	Component District Societies	No. of Fellows*	No. Nominated by Councilors of Each District Society	No. Presented by Nominating Committee to Council for Election	No. Elected by Council
Western	Franklin	52	2		
	Berkshire	136	2		
	Hampden	343	2	2 or more	1
	Hampshire	73	2		
		604			
Worcester	Worcester	436	2		
	Worcester North	109	2	2 or more	1
		545			
Middlesex	Middlesex North	144	2		
	Middlesex South	1043	4	4 or more	2
	Middlesex East	137	2		
		1324			
Essex	Essex North	224	2		
	Essex South	325	2	2 or more	1
		549			
Suffolk	Suffolk	714	4	2 or more	1
Norfolk	Norfolk	888	4		
	Norfolk South	156	2	4 or more	2
		1044			
Cape	Plymouth	163	2		
	Bristol North	73	2		
	Bristol South	213	2	2 or more	1
	Barnstable	52	2		
		501			

*Based on figures of December 26, 1940.

and shall be nominated by the councilors of the various district societies concerned, as already described in subsections *a*, *b* and *c* of this section, unless the Council otherwise directs.

The Executive Committee shall meet at the call of the President at least once in each interval between Council meetings and may meet more often at the pleasure of the President. It shall assist the President in preparing for the consideration of the Council matters calling for action by the Council at its next meeting. It shall authorize action when circumstances require it, subject to the approval of the Council. It shall perform such other duties as the Council may require.

The consent of the Executive Committee shall be required to confirm the appointment, upon nomination by the President, of the Executive Secretary of the Society.

Upon request, members of the Executive Committee shall be paid the amount of their traveling expenses from the funds of the Society.

Chapter V

Censors and Supervisors

Section 1. The supervisors, representing the censors of the several district societies, shall constitute a board, which shall meet annually on the day appointed for the annual meeting of the Council. The board shall elect a chairman, who shall have power to call special meetings. Five supervisors shall constitute a quorum. The secretary or executive secretary of the general Society shall act as secretary of the board. He shall keep a permanent record of the proceedings of the board, and shall provide, at the expense of the Society, papers and forms necessary for conducting examinations of applicants for fellowship. The board at its annual meeting shall adopt a uniform plan for the examination of applicants. The supervisors shall be paid the amount of their traveling expenses from the funds of the Society.

Chapter VI

Officers

Section 1. (Additional.)

He shall call at least one meeting of the Executive Committee of the Council between Council meetings and may call more meetings if he so desires.

Section 2. In the absence of the President, the Vice-President shall perform all the duties of the President; and in the absence of both, the senior Vice-President *ex officio* in point of membership shall perform the duties of the President.

Section 3. The President-Elect shall assist the President in the performance of his duties in such a manner as the President may direct and in so doing shall be considered to represent the President.

In the absence of the President-Elect, the Council, at its next annual meeting, shall, upon nomination by the Nominating Committee and/or from the floor, elect a President.

Section 4. The Secretary may assign to the Executive Secretary any or all of the duties now to be enumerated, except as specified below:

The Secretary shall attend all meetings of the Society and of the Council, and shall record their respective proceedings in separate record books; and this duty he may not assign.

He shall cause to be engrossed and shall sign the diplomas of new fellows if satisfied that they have met the requirements of sections 1 and 2 of chapter I, and shall issue all diplomas and certificates of fellowship. He shall notify individual fellows, in appropriate instances, of votes by the Council granting permission, as the case may be, to retire, to resign, to change district membership, to have dues remitted, or of votes depriving them of the privileges of fellowship; and these duties he may not assign.

He shall act *ex officio* as secretary of all boards of trial; and this duty he may not assign.

He shall have custody of the seal of the Society and of all books, papers, manuscripts, prints and paintings belonging to the Society, except such as are in charge of the Treasurer; and this duty he may not assign.

He shall act *ex officio* as secretary of the Board of Supervisors and of the Committee on Publications and the Committee on Ethics and Discipline, and shall keep the records of each in a separate volume. He shall have custody of all records as thus kept.

He shall issue notices of the meetings of the Council. One month before the annual meeting of the Society he shall issue to every fellow a program which shall contain: (*a*) notification of the time and place of the annual meeting; (*b*) notification of the stated meetings of the Council for the year, and the meetings of the boards of censors; (*c*) information concerning the payment of assessments, and the distribution of publications.

He shall record the *Proceedings of the Council and of the Society*. He shall keep a complete list of the fellows of the Society, with their addresses so far as known. He shall transfer fellows from one district to another under the terms of chapter III, section 2, and shall report to the Society at its annual meeting the changes in membership of the Society during the year.

He shall conduct the official correspondence of the Society, and shall notify officers, delegates, and members of the committees of the general Society of their appointments and of their duties.

Under the direction of the Committee on Publications he shall issue at such intervals as may be determined by the Council a directory of officers and fellows of the Society, which shall be furnished upon request to fellows who are not in arrears.

He shall perform such other duties as the Society or the Council may require.

Section 5. The Executive Secretary shall be chosen by the Executive Committee of the Council upon nomination by the President. He shall hold office for one year or until his successor has been duly elected.

He shall perform such duties as are assigned to him in section 4 of this chapter and by the Executive Committee. In general, he shall assist the officers of the Society and such standing and other committees as may request his services, and his preoccupation shall be the service of the Society.

He shall attend all meetings of the Council and, on request, attend the meetings of the Executive Committee of the Council, but shall not vote in either.

The Executive Secretary need not be a fellow of the Society and nothing in this section shall forbid the choice of a woman for the office.

COMMITTEE ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS

The Committee on Medical Education and Medical Diplomas has been directed by the Council to submit changes in the by-laws relative to the admission to the Society of graduates of medical schools not on the list recognized by the Council. At the next meeting of the Council the committee will submit proposed changes in the by-laws designed to accomplish the following:

1. To change its name to the Committee on Medical Education.
2. To change the date of the fall censors' examination from the first Thursday in November to the first Thursday in December.
3. To collect an examination fee of three dollars from each applicant examined by the censors.
4. To disqualify an applicant failing two examinations from again applying until three years have passed.
5. To set definite dates for filing applications, publication of names in the *Journal* and so forth.
6. To institute sponsorship by a fellow of the Society for each applicant who is a graduate of an unrecognized school.
7. To institute a local board of membership for each district society composed of the president, secretary and supervising Censor, who shall have the responsibility of interviewing each applicant who is a graduate of an unrecognized school, collecting information about him, and submitting recommendations to the Committee on Medical Education as to whether or not he should be allowed to appear before the censors. The Committee on Membership shall render the final decision, as at present.
8. To give power to the Committee to change the list of medical schools recognized by the Council whenever such action appears necessary to the Committee.

With the approval of the Committee on Ethics and Discipline there will also be submitted proposed changes in the by-laws designed to accomplish the following:

9. To have an investigation by the local board of membership of every former fellow who seeks readmission to the Society, the recommendations to be submitted to the Committee on Membership, which shall report to the Council. When a resignation has been requested by the Committee on Ethics and Discipline, or where deprivation has occurred for a reason other than nonpayment of dues, the board shall consult with the Committee on Ethics and Discipline. No applicant for readmission to the Society shall appear before the board of censors.

JOHN P. MONKS, *Chairman.*

COMMITTEE ON MEMBERSHIP

At the February meeting of the Council a recommendation, to provide for a remission of dues of fellows who are called to full-time service in the United States Army, Navy or Public Health Service, will be presented:

Fellows of the Society who are called to full-time service in the United States Army, Navy or Public Health Service during the present emergency and whose livelihood is thereby impaired may, on written application to the Treasurer stating their situation, have their dues remitted for the year of service. A period of full-time service greater than six months shall give the privilege of a year's remission of dues. The *New England Journal of Medicine* will only be sent to such members on payment of an annual fee of four dollars ($4.00). The President of the Society shall determine the end of the present emergency.

G. COLKET CANER, *Chairman.*

SECTION OF OBSTETRICS AND GYNECOLOGY*

RAYMOND S. TITUS, M.D., *Secretary*
330 Dartmouth Street
Boston

PREGNANCY COMPLICATED BY CARDIAC DECOMPENSATION AND RESULTING IN DEATH

Mrs. M. P., a twenty-three-year-old primipara, was referred by her family doctor on January 8, 1924, when she was approximately four months pregnant.

The family history was essentially noncontributory. The patient had rheumatic fever at the age

*A series of selected case histories by members of the section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the section.

of eight years and was kept in bed for six weeks. There was no history of any other disease. A tonsillectomy was performed when the patient was twelve years old. Catamenia began at thirteen, were regular with a twenty-eight-day cycle and lasted four days. The last period began on September 15, 1923, making the expected date of confinement June 22.

Physical examination on January 8 revealed a well-developed and well-nourished young woman. The weight was 128 pounds. The lungs were clear and resonant; there were no rales. The heart showed definite evidence of mitral stenosis. The blood pressure was 112 systolic, 60 diastolic. The abdomen was negative except for a uterus that was enlarged to a size consistent with the period of amenorrhea. Vaginal examination revealed the cervix to be soft.

On January 29 the weight was 132 pounds. The patient was seen by a medical consultant after she disclosed that she had had some precordial distress and had coughed up blood on two occasions. The consultant's note read as follows:

> The patient has a poor heart muscle. The blood pressure is 100/60, the pulse rate 120. The apex impulse is in the 5th intercostal space, 10 cm. to the left of the midsternal line; the dullness on the right extends 3 cm. from the midline; there is slightly increased dullness upward. The apex impulse is light and tapping, and there is some soreness of chest. There is a presystolic thrill; the heart action is regular. At the apex, the first sound is sharp; there are presystolic and systolic murmurs. The pulmonic and aortic second sounds are sharp and clear. There is a question of a few crackles in the right base. Diagnosis: mitral stenosis.

Following this visit the patient was kept in bed for ten days.

On March 19 she complained that she had been having considerable epigastric distress, and she was seen by another medical consultant. At this time she was in the hospital because of discomfort and for the purpose of rest. The consultant concurred in the diagnosis of mitral stenosis and advised that she lead a very quiet life; he also suggested that she be delivered by cesarean section.

On May 1 the patient had an attack of decompensation in the middle of the night. She complained of great difficulty in breathing, and vomited. The pulse was 120. She was advised to stay in bed from then until delivery.

On May 15 she had a slight cold, but her pulse remained about 90 and her condition seemed satisfactory. She was seen at home on May 20, at which time the blood pressure was 118 systolic, 60 diastolic and the pulse 90.

One week later, when the patient was approximately thirty-six weeks pregnant, the heart again became decompensated. She vomited blood and coughed a great deal. The pulse was over 100, and she was pale. She was taken immediately to the hospital, where her condition became steadily worse. She started in labor, and died undelivered on May 28.

Comment. In 1924 the treatment of pregnancy complicated by cardiac disease was little understood, and the complication not particularly well handled. In this case the mitral stenosis dated back to the rheumatic fever and in retrospect the patient never should have become pregnant. When she was first seen by the family physician, the question of therapeutic abortion should have been entertained. When the patient was first seen by the obstetrician at about four months, the problem appeared very grave, but because of the scruples of the family, it was decided to allow the pregnancy to continue.

During her pregnancy there were several attacks of decompensation. The patient was hospitalized once, and was in bed at home a good part of the last months of her pregnancy. In spite of this, decompensation occurred, followed by labor and death. Today, therapeutic abortion and sterilization would be advised very strongly as soon as the patient was seen. Electrocardiograms would be taken. If abortion were refused, such a patient should be hospitalized practically all the time.

It is now believed that in such cases the peak of the load becomes less after the thirty-sixth week, and that many cases go on to spontaneous delivery. There is still a question whether patients as sick as this one should not be delivered by cesarean section under spinal or local anesthesia as soon as viability is established, or at the first signs of cardiac failure.

MEDICAL POSTGRADUATE EXTENSION COURSES

The following sessions, given by the Massachusetts Medical Society in co-operation with the Massachusetts Department of Public Health, the United States Public Health Service and the Federal Children's Bureau, have been arranged for the week beginning January 19:

MIDDLESEX EAST

Tuesday, January 21, at 4:15 p.m., at the Melrose Hospital, Melrose. Chemotherapy in the Treatment of Gonococcal Infection. Instructor: Sylvester B. Kelley. Walter H. Flanders, *Chairman.*

MIDDLESEX SOUTH

Tuesday, January 21, at 4:00 p.m., at the Cambridge Hospital, Mt. Auburn Street, Cambridge. Technic and Treatment of Primary, Secondary and Tertiary Syphilis. Instructor: Rudolph Jacoby. Dudley Merrill, *Chairman.*

NORFOLK

Thursday, January 23, at 8:30 p.m., at the Norwood Hospital, Norwood. Diagnosis and Treatment of Minor Lesions of Rectum and Anus. Instructor: E. Parker Hayden. Hugo B. C. Riemer, *Chairman.*

NORFOLK SOUTH

Monday, January 20, at 8:30 p.m., at the Quincy City Hospital, Quincy. Obstetric Infections: Diagnosis and treatment. Instructor: John Rock. David L. Belding, *Chairman.*

SUFFOLK

Thursday, January 23, at 4:30 p.m., in John Ware Hall, Boston Medical Library. Pediatric Case Discussions. Instructor: Edwin H. Place. Reginald Fitz, *Chairman.*

NEW HAMPSHIRE MEDICAL SOCIETY

DEATHS

HUSE — ERNEST L. HUSE, M.D., aged sixty, died at Meriden on December 20, 1940. He was known to many as one of the last of the so-called "country doctors."

Dr. Huse graduated from Dartmouth Medical School in 1907. A former president of the Sullivan County Medical Association, he had practiced in Meriden for thirty-one years.

Survivors are his wife, Mrs. Helen Huse, and two sons, E. Leslie, of Allenhurst, New Jersey, and Raymond A., of Hackensack, New Jersey.

MORRILL — SIBLEY G. MORRILL, M.D., of Concord, died Saturday, December 28, 1940, after a long illness. He was born in Concord in 1873, the son of Luther Sullivan and Mary Agnes (Gage) Morrill; he was the grandson of Dr. Charles P. Gage, who began a Concord practice in 1838. Dr. Morrill graduated from the Harvard Medical School in 1898. He had been president of the staff at Margaret Pillsbury General Hospital, consultant at the New Hampshire Memorial Hospital and the Pembroke Sanatorium and a member of the state and city boards of health.

Dr. Morrill was a fellow of the American Medical Association and a member of the New Hampshire Medical Society and the Center District Society.

He married Georgia Sherman in 1905, and after her death married Anna Wenzell. Two sons, Sibley S. Morrill, of San Francisco, and Roger S. Morrill, of Concord, survive him.

MISCELLANY

TUBERCULOSIS AND MILITARY SERVICE

Sixteen and a half million men have registered for military service. Almost one million of them have thus far been selected. According to news reports, the men will be subjected to a hardening process to the point where they will be able to march thirty miles per day bearing full equipment. It is highly important that among them there shall be none who, because of a tuberculous focus, will crack under the strain. So that costly lessons, learned during World War I may not go unheeded, Spillman in a recent article (The value of radiography in detecting tuberculosis in recruits, *J. A. M. A.* **115**:1371–1378, 1940) summarizes the methods employed to discover tuberculosis, calculates the enormous cost of service-acquired tuberculosis and discusses what should be done to safeguard the nation's manpower and financial resources against the enemy that bores from within.

World War I is twenty-two years behind us, yet the federal government pays in compensation for tuberculosis that originated in service about $3,000,000 each month. Analysis of voluminous and complicated federal reports dealing with service-acquired tuberculosis yields the following approximate figures:

Cost of vocational training	$129,000,000
Insurance	130,000,000
Compensation	600,000,000
Hospital care	100,000,000
	$959,000,000

The total number of men compensated for tuberculosis in 1922 (it is not feasible, from the annual reports, to run the figures back past 1922) was 36,600. In 1939, the total number was 55,634, including 1947 deaths for that year.

The expense of taking a man who has tuberculosis into the service cannot be accurately calculated because of many factors that are still unknown and costs that are not apparent, but the author estimates that the figure would be somewhere around $10,000 per man to date, certainly not less than $7500, to which should be added at least $50 a month for the rest of the man's life, and compensation for his dependents after death.

Study of army procedure during World War I leads to the conclusion that the methods employed for the detection of tuberculosis were inadequate. This does not detract from the stature of that distinguished army surgeon, Colonel George E. Bushnell, the adviser to the Surgeon General on all matters pertaining to tuberculosis. It was the consensus of experts in 1917 that adult exogenous infection with tuberculosis is rare, that infection in childhood is well-nigh universal and that every infection confers an immunity to anything short of massive doses of tubercle bacilli in later life. By the same token, adult tuberculosis was held to result from a reactivation of the antecedent infection. It was thought that for every soldier who had *incurred* tuberculosis as a result of military service, ten others had *brought the disease with them* into the army. Present-day experience does not uphold this belief — to cite at random just one of numerous communications. Diehl and Myers proved the development of six cases of tuberculosis in one college fraternity a year after one of its members was found to have a positive sputum, and the development of tuberculosis in a girl several years after her sorority roommate was found to have tuberculosis.

The problem at hand is this: How can the recruit who already has active tuberculosis be recognized, so that he may be rejected for the protection of himself and others? Colonel Bushnell trained a large number of highly competent diagnosticians, to whom he imparted the significance of the post-tussal moist rale and the technic of eliciting it. The patient is instructed to cough gently at the end of deep expiration. When he inhales after the cough, the rale is heard. The presence of persistent moist rales was the criterion for determining the existence of tuberculosis. Several prominent physicians and radiologists tried to induce the Surgeon General to make the radiograph the decisive factor in the diagnosis of pulmonary tuberculosis. The practical difficulties in the way of the adoption of the radiograph were, however, insuperable, according to Colonel Bushnell, in which conviction he was supported by a special committee of the Council of National Defense that investigated the question. Among the difficulties were the enormous cost of photographing,

the impossibility of obtaining a sufficient number of plates (made of glass and most of it imported from Belgium) and the lack of trained radiologists.

Draft boards set up in every community added to the difficulty. These boards included local physicians who were supposed to reject draftees with disqualifying defects. Although most draft boards functioned honestly and intelligently, there is evidence in official publications that, far from weeding out the manifestly tuberculous trainees, some boards actually concentrated tuberculosis at some of the camps, thinking that the men would benefit by change of climate and by army life. In the re-examination of 19,827 men at Camp Kearny, for example, 853 cases of tuberculosis (4.83 per cent) were discovered.

With this background, what should our procedure be in the present situation? Of the available methods for the mass diagnosis of tuberculosis among recruits, physical examination and radiography need to be considered on a basis of relative merits. Evidence of the inadequacy of physical examination to detect tuberculosis is overwhelming. The last word so far as the army was concerned in 1917 was that "the only trustworthy sign of activity of apical tuberculosis is the presence of persistent moist rales." In the light of present-day knowledge this sign is conclusive in only about 12.5 per cent. In spite of the acknowledged skill of the army examiners of 1917, only about one eighth of the actually existent, clinically significant tuberculosis was detected.

The radiograph should be the criterion in weeding out tuberculosis in today's mobilization. In what form? Fluoroscopy gives no record and is highly subjective. As demonstrated by the experience of a large life-insurance company, fluoroscopy in skillful hands may serve as an alternative to a prohibitively expensive routine of roentgenography, but even this company has, since 1936, been making routine roentgenograms of the chest of every applicant for employment.

The paper roentgenogram is speedy and convenient and cheaper than celluloid. Radiologists as a whole do not favor the paper radiogram, whereas tuberculosis workers are enthusiastic over it. If celluloid films were available on rolls like the paper rolls, they would undoubtedly be preferred. Paper roentgenograms are vastly preferred to no roentgenograms, but celluloid would be preferred if the author were given a choice.

Photography of the fluoroscopic screen is another possibility. But if this method, known as fluorography, is no more than 90 per cent efficient as compared with the standard celluloid roentgenogram, as Dr. Spillman believes, the 10 per cent shortage in diagnosis would cost a great deal of money in compensation later. Fluorography is today a highly promising method but awaits further improvements before it can compete with celluloid roentgenograms.

For radiography there are many kinds of apparatus varying in price and capacity. What is most important, however, is the skill and knowledge of the operator.

The author's final conclusion is:

> A normal chest roentgenogram should be the criterion of acceptance in a future mobilization, including the proposed draft for training, and it should be made and reported before the recruit has spent a night away from his own roof to obviate a repetition of the claims for aggravation of pre-existing tuberculosis which occurred during and after the World War.

Reprinted from *Tuberculosis Abstracts,* January, 1941.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR NOVEMBER, 1940

Diseases	November 1940	November 1939	Five-Year Average*
Anterior poliomyelitis	4	7	14
Chicken pox	1269	947	908
Diphtheria	12	27	23
Dog bite	673	549	604
Dysentery, bacillary	12	135	37
German measles	34	34	48
Gonorrhea	340	426	480
Lobar pneumonia	354	270	262
Measles	985	857	491
Meningococcus meningitis	8	2	4
Mumps	384	248	361
Paratyphoid B fever	3	1	4
Scarlet fever	480	264	493
Syphilis	407	419	483
Tuberculosis, pulmonary	160	162	236
Tuberculosis, other forms	17	10	23
Typhoid fever	5	2	7
Undulant fever	4	5	4
Whooping cough	889	505	580

*Based on figures for preceding five years.

RARE DISEASES

Actinomycosis was reported from: Brockton, 1; total, 1.

Anterior poliomyelitis was reported from: Ashland, 1; Greenfield, 1; Hadley, 1; Worcester, 1; total, 4.

Diphtheria was reported from: Chelsea, 2; Fall River, 5; Foxboro, 1; Sturbridge, 1; Wellesley, 2; Worcester, 1; total, 12.

Dysentery, amebic, was reported from: Bridgewater, 1; Somerville, 1; total, 2.

Dysentery, bacillary, was reported from: Boston, 1; Cambridge, 8; Everett, 1; Lowell, 2; total, 12.

Infectious encephalitis was reported from: Palmer, 1; Springfield, 1; total, 2.

Malaria was reported from: Cambridge, 2; total, 2.

Meningococcus meningitis was reported from: Gloucester, 1; Lowell, 1; Malden, 1; Medford, 1; Methuen, 1; Milford, 1; Quincy, 1; Springfield, 1; total, 8.

Paratyphoid B fever was reported from: Brockton, 1; Fall River, 1; Wellesley, 1; total, 3.

Pellagra was reported from: Belmont, 1; total, 1.

Septic sore throat was reported from: Boston, 5; Cambridge, 2; Lynn, 1; New Bedford, 1; Quincy, 1; Somerville, 1; Wrentham, 1; total, 12.

Tetanus was reported from: Chelsea, 1; total, 1.

Trachoma was reported from: New Bedford, 1; total, 1.

Trichinosis was reported from: Winchester, 8; total, 8.

Typhoid fever was reported from: Boston, 2; Cambridge, 1; Somerville, 1; Woburn, 1; total, 5.

Undulant fever was reported from: Barre, 1; Dartmouth, 1; Lynnfield, 1; Plymouth, 1; total, 4.

Measles, mumps, meningococcus meningitis, lobar pneumonia and whooping cough were reported above the five-year averages.

Pulmonary tuberculosis showed record low incidence.

The incidence of undulant fever was not remarkable.

Scarlet fever, diphtheria, German measles and anterior poliomyelitis were reported below the five-year averages.

Tuberculosis (other forms) was reported at a record low figure.

Diseases of the typhoid-paratyphoid group showed low incidence.

Dog bite was reported at a record high figure for the fourth consecutive month. Animal rabies was reported from Halifax, Hanson, Worcester, Spencer and Leicester.

CORRESPONDENCE

REVOCATION OF REGISTRATION

To the Editor: At the meeting of the Board of Registration in Medicine, held December 19, 1940, the Board canceled the registration as a practitioner of medicine in this Commonwealth and revoked the certificate of registration of Dr. Michael Litvich, 114 Shirley Avenue, Revere, Massachusetts, because of deceit in connection with an automobile accident case.

STEPHEN RUSHMORE, M.D., *Secretary,*
Board of Registration in Medicine.

State House,
Boston.

NOTICES

ANNOUNCEMENTS

G. MARSHALL CRAWFORD, M.D., announces the removal of his office from 416 Marlboro Street, Boston, to 1101 Beacon Street, Brookline.

JOHN C. TATE, M.D., announces the removal of his office from the Westfield State Sanatorium, Westfield, to 20 Maple Street, Springfield.

BOSTON DOCTORS' SYMPHONY ORCHESTRA

The Boston Doctors' Symphony Orchestra will rehearse under Alexander Thiede, formerly concertmaster of the Cleveland Symphony Orchestra, every Thursday at 8:30 p.m. Those interested in becoming members should communicate with Dr. Julius Loman, Pelham Hall Hotel, Brookline (BEA 2430).

CARNEY HOSPITAL

The monthly clinical meeting and luncheon of the Carney Hospital will be held in the auditorium of the Carney Hospital on Monday, January 20, at 11:30 a.m. Medical, surgical and gynecological case reports will be presented.

Physicians and medical students are invited to attend.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held on Tuesday, January 28, in the amphitheater of the Peter Bent Brigham Hospital at 8:15 p.m. Dr. Elliott C. Cutler will preside.

PROGRAM

Presentation of cases.
Carcinoma of the Pancreas. Dr. Frank Glenn, assistant professor of surgery, Cornell University Medical College.

NEW ENGLAND SOCIETY OF PHYSICAL MEDICINE

There will be a regular meeting of the New England Society of Physical Medicine at the Hotel Kenmore, Boston, on Wednesday, January 22, at 8:00 p.m. An informal dinner will be served in the Empire Room at 6:30 p.m.

PROGRAM

The Clinical Significance of the Electroencephalogram. Dr. Hallowell Davis.
Discussion by Miss Pauline A. Davis and Dr. H. Houston Merritt.

All members of the medical profession are cordially invited to attend.

NEW ENGLAND PEDIATRIC SOCIETY

There will be a meeting of the New England Pediatric Society on Wednesday, January 29. The clinical presentation will be held at the amphitheater, Joseph H. Pratt Diagnostic Hospital, and all other events at Longwood Towers, Brookline.

PROGRAM

4:00 Clinical meeting, Boston Floating Hospital. Dr. Elmer W. Barron and his associates.
6:30 Refreshments.
7:00 Dinner.
8:00 Annual meeting of the society.
Election of officers.
Report of the treasurer.
8:30 Pathologic Aspects of Adiposity. Dr. Sidney Farber.

NEW ENGLAND DERMATOLOGICAL SOCIETY

The next regular meeting of the New England Dermatological Society will be held on Wednesday, February 12, at the Massachusetts General Hospital. The clinic will start at 2 p.m. in the Skin Out-Patient Department.

HAMPDEN DISTRICT MEDICAL SOCIETY

The annual winter meeting of the Hampden District Medical Society will be held on Tuesday, January 21, at 4:00 p.m. in the rooms of the Springfield Academy of Medicine.

Dr. Tracy B. Mallory will present a paper on "Peptic Ulcer Formation" with lantern slides.

Luncheon will be served at 6:30 p.m. at the expense of the society.

MASSACHUSETTS DEPARTMENT OF CIVIL SERVICE AND REGISTRATION

School Physician, $360 a Year, Lowell
School Physician, $1000 a Year, Chicopee

Director of State Civil Service, Ulysses J. Lupien, has recently announced that competitive examinations are to be held on March 1 in order to find eligibles for appointment to the positions of school physician, Health Department, Lowell, and dispensary school physician, Health Department, Chicopee.

The entrance requirements are as follows: applicants must be registered physicians under the State Board of Registration in Medicine. The subjects and weights of the examinations are as follows: training and experience, 2; practical questions, 3; total, 5. Applicants must obtain a grade of 70 per cent in each subject in order to become eligible. The last date for filing applications is Saturday, February 15, at 12 o'clock noon.

WACHUSETT MEDICAL SOCIETY

The next meeting of the Wachusett Medical Society will be held on Wednesday, February 5, at the Holden District Hospital at 7:15 p.m. Dr. Chester S. Keefer will speak on "Recent Advances in the Treatment of Meningitis." Dinner will precede the meeting at 6:30 p.m.

NEW YORK UNIVERSITY COLLEGE OF MEDICINE

The date of the annual Alumni Day at the New York University College of Medicine has been changed from the usual Washington's Birthday to March 21 and 22, 1941. At this time, the Alumni Association is celebrating the one-hundredth anniversary of the founding of the medical college.

The program will begin with a dinner for all the alumni and their wives at Hotel Roosevelt on Friday, March 21. On Saturday, March 22, there will be a scientific session at the medical school during the morning and afternoon. There will be a luncheon in the lounge at the medical school; Dr. Nathan B. Van Etten, president of the American Medical Association, will be the speaker.

AMERICAN PUBLIC HEALTH ASSOCIATION

The seventieth annual meeting of the American Public Health Association will be held in Atlantic City, New Jersey, on October 14–17, with the Convention Hall as headquarters for the meeting and the Hotel Traymore as residence headquarters. The American School of Public Health, the International Society of Medical Health Officers, the Association of Women in Public Health, the Conference of State Sanitary Engineers, the Conference of Municipal Public Health Engineers, the Conference of State Provincial Public Health Laboratory Directors and a number of other related organizations will meet in conjunction with the association.

The annual meeting of the American Public Health Association will bring 3500 professional public-health workers to Atlantic City. A New Jersey committee responsible for entertainment, inspection trips and other local aspects of the meeting, is being formed under the direction of Dr. S. L. Salasin, health officer of Atlantic City.

SOCIETY MEETINGS AND CONFERENCES

Calendar of Boston District for the Week Beginning Sunday, January 19

Sunday, January 19

†4 p.m. How Accidents Happen. Dr. Henry C. Marble. Free public lecture. Harvard Medical School, Building D.

†4 p.m. Various Phases of Plastic and Reconstructive Surgery (illustrated). Dr. Varaztad H. Kazanjian. Public health lecture. Cambridge Hospital, Margaret Jewett Hall.

Monday, January 20

11:30 a.m. Monthly clinical meeting and luncheon. Carney Hospital.

12:15–1:15 p.m. Clinicopathological conference. Peter Bent Brigham Hospital amphitheater.

Tuesday, January 21

*9–10 a.m. Vitamin B Deficiency. Dr. Stuart Meiklejohn. Joseph H. Pratt Diagnostic Hospital.

*12 m. The Relation of Pituitary Function and Mental Development. Dr. George Levene. South End Medical Club. Headquarters of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston.

12:15–1:15 p.m. Clinicoroentgenological conference. Peter Bent Brigham Hospital amphitheater.

Wednesday, January 22

*9–10 a.m. Hospital case presentation. Dr. S. J. Thannhauser. Joseph H. Pratt Diagnostic Hospital.

*12 m. Clinicopathological conference. Children's Hospital.

*2–4 p.m. Abdominal Pain. Drs. Elliott C. Cutler and Soma Weiss. Peter Bent Brigham Hospital.

8 p.m. Boston Society of Biologists. Ether Dome. Massachusetts General Hospital.

*8 p.m. Clinical Significance of the Electroencephalogram. Dr. Hallowell Davis. New England Society of Physical Medicine. Hotel Kenmore, Boston.

Thursday, January 23

*8:30 a.m. Combined clinic of the medical, surgical, orthopedic and pediatric services of the Children's Hospital and the Peter Bent Brigham Hospital, at the Children's Hospital.

*9–10 a.m. Fissure in Ano. Dr. E. T. Whitney. Joseph H. Pratt Diagnostic Hospital.

Friday, January 24

*9–10 a.m. Pregnancy Complicating Diabetes. Dr. Priscilla White. Joseph H. Pratt Diagnostic Hospital.

Saturday, January 25

*9–10 a.m. Hospital case presentation. Dr. S. J. Thannhauser. Joseph H. Pratt Diagnostic Hospital.

*Open to the medical profession.

†Open to the public.

January 27 — New England Heart Association. Page 87, issue of January 9.

January 28 — Harvard Medical Society. Page 134.

January 29 — New England Pediatric Society. Page 134.

January 30 — Cutter Lecture. Page 87, issue of January 9.

February 5 — Wachusett Medical Society. Notice above.

February 12 — New England Dermatological Society. Page 134.

February 13 — Pentucket Association of Physicians. Page 263, issue of August 15.

February 20–22 — American Orthopsychiatric Association, Inc. Page 999, issue of December 12.

March 8 — American Board of Ophthalmology. Page 201, issue of August 1.

March 12–14 — New England Hospital Assembly. Hotel Statler, Boston.

March 21–22 — New York University College of Medicine, Alumni Day. Notice above.

April 21–25 — American College of Physicians. Page 1065, issue of June 20.

May 21, 22 — Massachusetts Medical Society, Boston.

June 2–6 — American Medical Association. Cleveland, Ohio.

October 14–17 — American Public Health Association. Notice above.

District Medical Societies

ESSEX SOUTH

February 5 — Gastric and Duodenal Ulcer: Diagnosis and treatment. Dr. Arthur Allen. Lynn Hospital.

March 5 — X-ray in Heart Disease. Dr. Merrill C. Sosman. Essex Sanatorium, Middleton.

April 2 — Pediatric Problems in General Practice. Dr. Joseph Garland. Addison Gilbert Hospital, Gloucester.

May 14 — Relation of the Doctor to the Law. Mr. Leland Powers. New Ocean House, Swampscott.

FRANKLIN

March 11.

May 13.

Meetings will be held at 11 a.m. at the Franklin County Hospital, Greenfield.

HAMPDEN

January 21 — Page 134.

NORFOLK

January 28 — Carney Hospital.

February 25 — Medicolegal meeting. 8:30 p.m. Hotel Puritan, Boston.

March 25 — To be announced.

May 8 — Censors' meeting. Hotel Puritan.

SUFFOLK

January 29 — Page 604, issue of October 10.

April 30 — Page 604, issue of October 10.

WORCESTER

February 12 — Worcester State Hospital, Worcester.

March 12 — Memorial Hospital, Worcester.

April 9 — Hahnemann Hospital, Worcester.

Supper at 6:30 p.m. followed by a business meeting and scientific program.

BOOKS RECEIVED

The receipt of the following books is acknowledged, and this listing must be regarded as a sufficient return for the courtesy of the sender. Books that appear to be of particular interest will be reviewed as space permits. Additional information in regard to all listed books will be gladly furnished on request.

Methods of Treatment. By Logan Clendening, M.D., clinical professor of medicine, Medical Department, University of Kansas, and attending physician, University of Kansas Hospitals; and Edward H. Hashinger, M.D., clinical professor of medicine, Medical Department, University of Kansas, attending physician, University of Kansas Hospitals, and attending physician, St. Luke's Hospital, Kansas City, Missouri. Seventh edition. 8°, cloth, 997 pp., with 138 illustrations. St. Louis: C. V. Mosby Company, 1941. $10.00.

Foreign Bodies Left in the Abdomen. The surgical problems: cases, treatment, prevention. The legal problems: cases, decisions, responsibilities. By Harry Sturgeon Crossen, M.D., School of Medicine, Washington University, St. Louis; and David Frederic Crossen, LL.B., School of Law, Washington University. 4°, cloth, 762 pp., with 212 illustrations, including 4 color plates. St. Louis: C. V. Mosby Company, 1940. $10.00.

Clinical Pellagra. By Seale Harris, M.D., professor emeritus of medicine, University of Alabama, Birmingham, Alabama; assisted by Seale Harris, Jr., M.D., formerly assistant professor of medicine, Vanderbilt University School of Medicine, Nashville, Tennessee. With foreword by E. V. McCollum, Ph.D., Sc.D., LL.D., professor of biochemistry, School of Hygiene and Public Health, Johns Hopkins University, Baltimore. 4°, cloth, 494 pp., with 66 illustrations and 4 color plates. St. Louis: C. V. Mosby Company, 1941. $7.00.

Doctor in Arabia. By Paul W. Harrison, M.D. 8°, cloth, 303 pp., with 9 illustrations. New York: John Day Company, 1940. $3.00.

Diagnosis and Treatment of Menstrual Disorders and Sterility. By Charles Mazer, M.D., assistant professor of gynecology and obstetrics, Graduate School of Medicine, University of Pennsylvania, and gynecologist, Mount Sinai Hospital, Philadelphia; and S. Leon Israel, M.D., instructor in gynecology and obstetrics, School of Medicine, University of Pennsylvania, and associate gynecologist, Mount Sinai Hospital. 8°, cloth, 485 pp., with 108 illustrations. New York: Paul B. Hoeber, Incorporated, 1940. $6.50.

The Doctor and the Difficult Child. By William Moodie, M.D., F.R.C.P., D.P.M., medical director, London Child Guidance, Clinic and Training Centre. 8°, cloth, 214 pp. New York: The Commonwealth Fund, 1940. $1.50.

The Endocrine Function of Iodine. By William Thomas Salter, M.D., assistant professor of medicine, Harvard Medical School, and associate physician, Thorndike Memorial Laboratory, Boston City Hospital. 8°, cloth, 351 pp., with 45 tables and 40 illustrations. Cambridge: Harvard University Press, 1940. $3.50.

Lipidoses: Diseases of the cellular lipid metabolism. By Siegfried J. Thannhauser, M.D., Ph.D., formerly professor of medicine, University Clinic, Freiburg, Germany, associate professor of medicine, Tufts College Medical School, and associate chief, Joseph H. Pratt Diagnostic Hospital, Boston. Edited by Henry A. Christian, M.D., LL.D., Hon. Sc.D., Hon. F.R.C.P. (Can.), Hersey Professor of the Theory and Practice of Physic, emeritus, Harvard University, and physician-in-chief, emeritus, Peter Bent Brigham Hospital, Boston. (Reprinted from Oxford Loose-Leaf Medicine). 8°, cloth, 370 pp., with 78 illustrations. New York: Oxford University Press, 1940. $6.00.

Hydrotherapy in Psychiatric Hospitals. By Rebekah Wright, M.D., hydrologist, Massachusetts Department of Mental Health. 8°, cloth, 334 pp., with 91 illustrations. Boston: The Tudor Press, 1940. $4.00.

Treatment in General Practice. Surgery (continued). Articles republished from the *British Medical Journal.* Vol. IV. 8°, cloth, 562 pp., with 143 illustrations. London: H. K. Lewis and Company, Limited, 1940. 16s net.

A Surgeon's Life: The autobiography of J. M. T. Finney. 8°, cloth, 396 pp. New York: G. P. Putnam's Sons, 1940. $3.50.

Bellevue. By Lorraine Maynard. In collaboration with Laurence Miscall, M.D. 8°, cloth, 280 pp. New York: Julian Messner, Incorporated, 1940. $2.50.

BOOK REVIEWS

Behind the Scenes of Murder. By Joseph Catton, M.D. 8°, cloth, 355 pp. New York: W. W. Norton & Company, Incorporated $3.00.

In the last twenty years the psychiatrist has become an important factor in the medicolegal aspect of homicide. With the gradual passing of the undignified and often useless "battle of experts" for the prosecution and for the defence, the court, in many states, now appoints before trial a psychiatrist or a board of mental experts to examine all persons accused of a capital crime. The findings are available for counsel of each side as well as for the judge. The author of this book has served various courts on the Pacific Coast as an independent expert for the last twenty-five years. His experience has been wide, and many persons of national "notoriety" have come under his observation, such as Mrs. Judd, William Hickman, and the Massies of Honolulu. Each case is separately analyzed, with a brief psychiatric summary of the accused person's reactions under examination. In most cases, the author allows the individual to tell his own story, and much of the book contains what purports to be actual statements and verbatim reports of conversations or exchanges between the witness and the lawyer on the stand.

This is not a learned scholarly account of the subject, but a semipopular treatise designed to interest the public as well as the medical profession. The tone in general is conservative, the author's reactions being well within the usually accepted standards of present-day psychiatry. The style is somewhat flamboyant, but for a discerning reader this should not obscure the basic soundness of the author's contentions. He is a staunch defender of complete psychiatric examination of accused persons, deplores such terms as "temporary insanity" and believes that we are not ready to substitute any known method of psychological third degree, such as "lie detectors" or "truth-telling serum" (scopolamine), for the fifth amendment to the Constitution: "No person charged with a criminal offense shall be forced to testify against himself."

Dr. Catton has no cure for homicide. Given the mental components of a slayer and the proper environment, any person might commit a crime. Constitutional defectiveness, in the psychiatric sense, is commonly found in

most slayers; alcohol and other drugs, the passions of jealousy, lust, rage and sadism, all are frequent environmental factors. Few murderers are insane, and psychiatry can offer "little or nothing towards preventing one-half the number of murders which are scheduled for tomorrow." Of the other half, early diagnosis and commitment of the "psychopaths," many with long criminal records, will help remove what Dr. Catton succinctly describes as "an invitation to murder." Other preventive measures are those well known under the general term of "social psychiatry." The main feature of a psychiatric approach to crime prevention should be, in Dr. Catton's opinion, clinical group study, such as that carried on by the Judge Baker Foundation in Boston, in addition to a continuing, directing jurisdiction over the offender by the clinic. Up to now, as soon as control is relinquished, men again commit crime, even murder. The key to crime prevention is therefore a continued psychiatric supervision.

This thought-provoking book is well printed. It carries an adequate index and a useful appendix with definitions of degrees of homicide, "triability tests," "responsibility tests" and other pertinent matters of law as used in the various states.

Obesity and Leanness. By Hugo R. Rony, M.D. 8°, cloth, 300 pp., with 32 illustrations. Philadelphia: Lea & Febiger, 1940. $3.75.

The value of this careful monograph lies in its stimulating presentation of the unsolved problems of its subject, rather than in any important discoveries in their solution. Obesity and leanness are rightly viewed as aspects of the same fundamental problem, — namely, why some persons go through life oversupplied with adipose tissue, whereas others, often in an apparently identical environment, remain desperately thin.

The book begins with chapters on the physiology and metabolism of fats in the body, followed by discussions of the caloric balance, the mechanisms of hunger, appetite and satiety, and the specific dynamic action of foods. The role of the endocrines, including the thyroid and pituitary glands and the pancreatic islets, and the influence of the autonomic nervous system and hypothalamus are surveyed. All these factors are related in a conception of homeostatic regulation. The importance of heredity is pointed out.

The later chapters deal with clinical aspects, classification and treatment. One is impressed throughout by the lack of well-established, exact knowledge of any but the most superficial aspects of the problem, and by the difficulty of devising experimental approaches yielding unequivocal conclusions. This study, however, is a challenge and a stimulus for continued work in this field.

The book is lucidly written, but the usage of conjunctions and prepositions is frequently inept. The typography is poor. There is a bibliography at the end of each chapter, and a good index.

Malaria and Colonization in the Carolina Low Country 1526–1696. By St. Julien Ravenel Childs. 8°, paper. 306 pp. Baltimore: The Johns Hopkins Press, 1940. $2.50.

The Carolina Low Country extends from Florida to Cape Hatteras, from the coastal area as far west as the mountains. Malaria was formerly so prevalent in this territory that white men could remain there overnight during the fever season only at the risk of their lives. Before 1670, when the Englishmen settled near the present site of Charleston, all the earlier colonies had failed. Malaria was partly responsible, since it occurred in epidemics and often caused marked disability and even death. Later the disease became endemic, until it gradually died out toward 1700.

Mr. Childs has written a finely documented account of the whole subject. His work is full of dependable historical data of medical interest. He gives an excellent account of Dr. Nicolás Monardes, of Seville, a voluminous writer, who gave the only definite report of malaria in the Low Country during the period of 1565–1580. His work is best known in this country through its English translation, *Joyfull Newes out of the Newe Founde Worlde* (1577), by Frampton. The first edition, in Spanish, was issued at Seville in 1565. A new edition of Monardes was published in 1925.

About one hundred years after Monardes's time, another physician, the Englishman, John Locke, was an important figure in the development of the Carolina colony. He entered the services of Astley Cooper, first earl of Shaftesbury, as a physician. He probably drew up the constitution of Carolina and assisted the promoters in other ways. Neither Cooper nor Locke came to Carolina, and there were few physicians in the Low Country in the early seventeenth century. Toward 1700 many more doctors are listed by Mr. Childs in his extensive account of the development of Charleston.

This comprehensive study, with an extensive bibliography and a good index, is a fine example of medical and historical research. It will long serve as the outstanding reference on the subject.

Medical Work of the Knights Hospitallers of Saint John of Jerusalem. By Edgar Erskine Hume, M.D. 4°, cloth, 371 pp., with 130 illustrations. Baltimore: Johns Hopkins Press, 1940. $3.00.

Although there have been a number of histories of the Knights of Saint John of Jerusalem, no account of the medical work of this old order has ever before been undertaken. The book is therefore a work of primary importance to the medical historian. No one is more fitted for the investigation than Colonel Hume, a Knight of Honor of the order, an accomplished historian, and a physician in the Medical Corps of the United States Army. The book, moreover, has the stamp of the Institute of the History of Medicine of the Johns Hopkins University, and some of the chapters have already appeared in the *Bulletin* of that institute.

Colonel Hume's interest in the order is understandable, for the Knights of Saint John, later called the Knights of Rhodes and the Knights of Malta to signify their travels, were first organized by military medical officers or warring physicians. They were not "noncombatants," but a military group who could strike the enemy mighty blows, and yet later bind the wounds of that same enemy as well as those of their own comrades. They went on the Crusades, founded a hospital in Jerusalem as early as 1065, were driven to Rhodes and later to Malta, and finally spread over the world, always taking a Christian part in wars and doing missionary work in distant lands. The British branch was active in World War I, and many will remember the bombing of their hospital at Étaples in 1918.

The book is well produced, with numerous illustrations and an index. It is a fundamental text, and Colonel Hume is to be congratulated on completing a long task. He has traveled far, and much of the medical history of this order is due to his first-hand observation. This is the type of work of which American medical historians can justly be proud.

Pediatrics and Pediatric Nursing. By A. Graeme Mitchell, M.D., Echo K. Upham, R.N., and Elgie M. Wallinger, R.N. 8°, cloth, 575 pp., with 83 illustrations. Philadelphia: W. B. Saunders Company, 1939. $3.00.

This book satisfactorily covers the ground of pediatric nursing in health as well as in disease. It should teach the nurse not only what to do and how to do it, but the why's and wherefore's of her procedures. In other words, it supplies adequately the pediatric background, without giving her so much material as to tempt her to become an amateur doctor. The writing is plain, simple and direct; explanations and definitions are given where they seem necessary. There are excellent charts and tables, apt and pertinent illustrations, diet lists and diet instructions for different ages and lists of suitable books and toys. Because the book is intended largely for use in training schools, there are problems and questions at the end of every chapter. It is a pleasure to recommend a book that seems so safe, sane and adequate within its field.

Clinical Roentgenology of the Alimentary Tract. By Jacob Buckstein, M.D. 8°, cloth, 652 pp., with 525 illustrations. Philadelphia: W. B. Saunders Company, 1940. $10.00.

The author has written a most readable text, profusely and excellently illustrated, and containing abundant references to the literature. Unlike many so-called "new" books, the diagnostic criteria applicable to even very recently described technical maneuvers are incorporated. It should be read by all roentgenologists and gastroenterologists. The general practitioner who peruses it will be impressed by the multiplicity of lesions successfully diagnosed by the roentgen method and will receive tangible proof that roentgen diagnosis of disease of the gastrointestinal tract is no longer the simple procedure it was once thought to be, but rather a complex operation requiring special equipment, repeated examinations and specific knowledge on the part of the examiner.

Endocrine Therapy in General Practice. By Elmer L. Sevringhaus, M.D. 8°, cloth, 239 pp., with 49 illustrations. Chicago: The Year Book Publishers, Incorporated. $2.75.

This small handbook on clinical endocrinology is a welcome addition to the busy physician. The book is clearly written. There is an apparent omission of many scientific details that might have made it difficult to read; however, the chief endocrine disorders are covered clearly so that an understanding of the subject can be accomplished with a minimum of effort. At the same time, the author has made each chapter sufficiently thorough for the complexities of each endocrine problem to be appreciated. The newer knowledge of Addison's disease is included; in every way the book is thoroughly up to date.

The Bacteriology of Public Health. By George M. Cameron, Ph.D. 8°, cloth, 451 pp., with 35 illustrations and 8 color plates. St. Louis: C. V. Mosby Company, 1940. $3.50.

This is a text of general medical and laboratory knowledge, for the most part accurate, but medically superficial. It is well written, and in places is well documented. It is doubtful if the author could pass the type of bacteriology examination customarily given to second-year medical students in this country. This lack of clinical perspective, as well as of precise knowledge, makes the book useless for medical students, and also for anyone who intends to undertake public-health responsibilities. It may be of value as a college textbook.

Cyclopropane Anesthesia. By Benjamin Howard Robbins, M.D. 8°, cloth, 175 pp., with 40 illustrations and 46 tables. Baltimore: Williams & Wilkins Company, 1940. $3.00.

This short informative book on Cyclopropane Anesthesia is written by a leading laboratory investigator in the field. The text gives many tables and laboratory findings, with the conclusions drawn from them. These are related to the opinions and findings of clinicians of wide experience. There are chapters dealing with the concentrations of cyclopropane required for anesthesia and with the effect of cyclopropane on the respiratory system, the gastrointestinal tract, the blood and the tissues. Other chapters describe the administration of cyclopropane and discuss its indications, contraindications and complications. In the outstanding chapter — on the effects of this anesthesia on the circulatory system — the author reports his experiments, which show that, in dogs, morphine increases the frequency of cardiac arrhythmias during cyclopropane anesthesia and that certain barbiturates abolish them. It is a valuable and instructive reference work for the specialist in anesthesia.

A Man Who Found a Country. By Dr. A. Nakashian. 8°, cloth, 279 pp. New York: Thomas Y. Crowell Company, 1940. $2.75.

This pleasantly written and informative book will interest readers who desire to get a first-hand knowledge of the life and work of a Christian subject and physician living under the rule of a Moslem monarch. Dr. Nakashian, an Armenian who obtained his medical degree in 1894, records his unique and dramatic experiences in reaching that goal. The theft of a corpse, sessions with a mad professor, efforts to undermine the strange superstition that examination of the pulse reveals everything, encounters with highway robbers, life in prison and incidents in general practice — all give an illuminating picture of conditions in general in the Near East. Dr. Nakashian writes in an exhilarating style, and the reviewer believes that this book will supply several hours of relaxation and instruction to any physician who may read it.

Handbook of Microscopic Characteristics of Tissues and Organs. By Karl A. Stiles, M.S., Ph.D. 8°, leather, 148 pp., with 9 tabular charts. Philadelphia: Blakiston Company, 1940. $1.50.

This outline is intended as a supplementary textbook of histology. A major feature is the help it offers to beginners in studying the identification of tissues and organs. Pages are printed only on one side, providing in this manner the opportunity for writing additional laboratory or lecture notes. There are useful tabular charts on the various systems of the body. This is a good guide for students who are preparing for examinations.

Psychiatry for Nurses. By Louis J. Karnosh, B.S., Sc.D., M.D. and Edith B. Gage, R.N. 8°, cloth, 327 pp., with 34 illustrations. St. Louis: The C. V. Mosby Company, 1940. $2.75.

This is a well-organized and practical book, worth reading even by the person who is not a nurse. It will do very well for the use of social workers and intelligent laymen who want to know facts and not fancies about mental disease.

The style is direct, terse and informative. The authors have done a good job in the preparation of this book, which can be highly recommended.